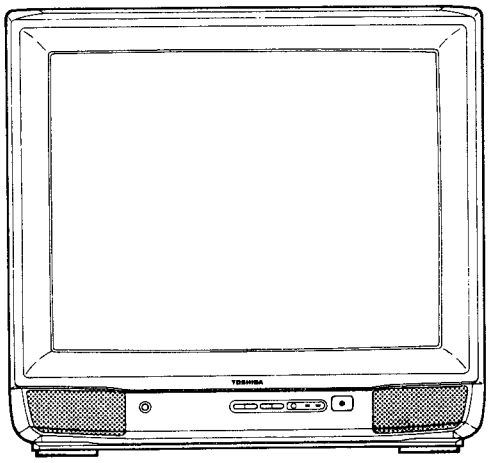
SERVICE DATA
FILE NO. 053-396
4-SYSTEM

TOSHIBA
COLOUR TELEVISION
2503SFZ

2503SFZ is the same as 2502SFT except for the cabinet parts.
Use this service data together with the service data for 2502SFT (File No. 050-396).

REPLACEMENT PARTS LIST



Location No.	Part No.	Description
A201S	23419565	Front Cover
A231	23443476	Knob, POWER
A235	23443477	Knob, UP-DOWN
A401	23423590	Back Cover
A411	23567933	Label, Model No., B/C
A701	23524081	Carton Box
A702	23934122	Packing, Bottom
A703	23934123	Packing, Top
Y101	23561606	Owner's Manual

TOSHIBA CORPORATION

Printed in Japan Mar. 1992 (So)

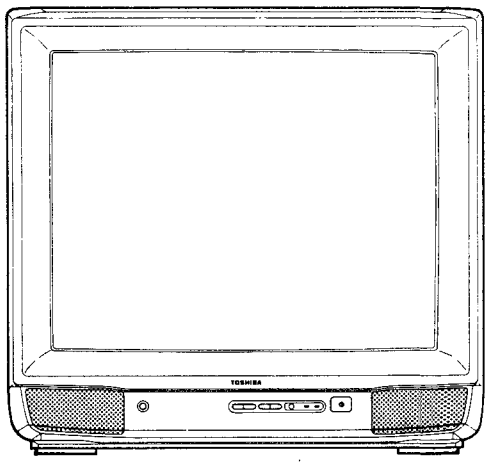
SERVICE DATA
FILE NO. 050-396
4-SYSTEM

TOSH -02511

TOSHIBA

COLOUR TELEVISION

2502SFT



SPECIFICATIONS

Input Power Rating:	92 watts, AC 220 volts, 50 Hz	
Aerial Input Impedance:	75 ohm unbalanced type for VHF and UHF	
Receiving Channels:	SECAM-L Standard:	
	VHF	channels B to C, 1 to 6, B to Q (70 to 86)
	UHF	channels 21 to 69
	PAL B/G Standard, SECAM B/G Standard:	
	VHF	channels 2 to 4, 5 to 12 and S1 to S20, S21 to S41
	UHF	channels 21 to 69
	PAL I Standard:	
	UHF	channels 21 to 68
Intermediate Frequencies:	Picture I-F carrier frequency:	L ..... 38.9 MHz (VH, U) 34.47 MHz(VL)
		B/G, I ..... 38.9 MHz
	Sound I-F carrier frequency:	L ..... 32.4 MHz (VH, U) 40.97 MHz(VL)
		B/G ..... 33.4 MHz
		I ..... 32.9 MHz
Picture Tube:	25 inches, A59ECY13X31, 510 mm (measured on diagonal of viewable picture area), 110° deflection	
Sound Output:	3.0 watts (at 10% harmonic distortion) x 2, Max. 4.5 watts x 2	
Speakers:	70 mm x 60 mm oval 2 pcs	
Aux. Terminals:	Headphone Jack, 21 pin socket, S-VIDEO/AUDIO socket, A/V INPUT socket	
Dimensions:	Height	556mm
	Width	600mm
	Depth	442mm
Weight:	26 kg	

Specifications are subject to change without notice.

2511

Printed in Japan Mar. 1991 (So)

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. The E.H.T. must be checked every time the receiver is serviced to ensure that the C.R.T. does not emit X-ray radiation as result of excessive E.H.T. voltage. The nominal E.H.T. for this receiver is 27.5 kV at zero beam current (minimum brightness) operating at 220V a.c. The maximum E.H.T. voltage permissible in any operating circumstances must not exceed 29.0 kV. When checking the E.H.T., use the 'High Voltage Check' procedure in this manual using an accurate E.H.T. voltmeter.
2. The only source of X-RAY radiation in this receiver is the C.R.T. To prevent X-ray radiation, the replacement C.R.T. must be identical to the original fitted as specified in the Parts List.
3. Some components used in this receiver have safety related characteristics preventing the C.R.T. from emitting X-ray radiation.
   For continued safety, replacement component should only be made after referring the Product Safety Notice below.

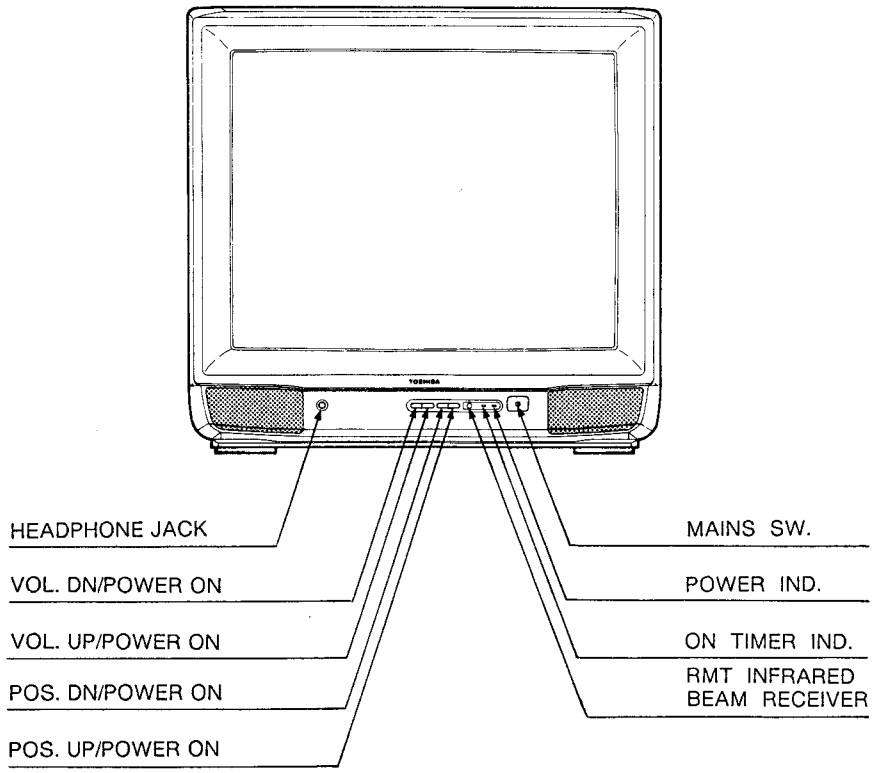
SAFETY PRECAUTION

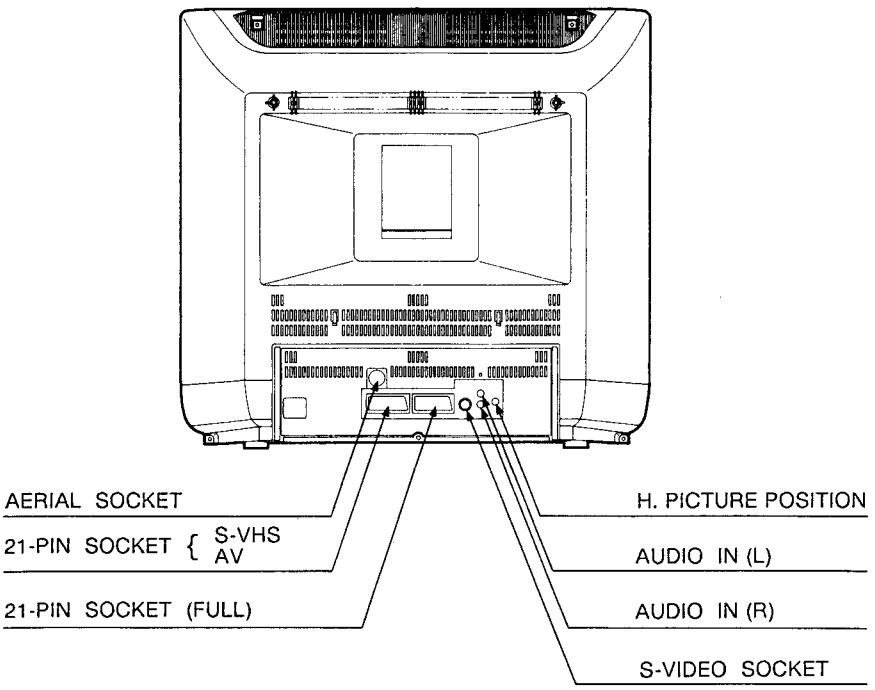
1. This receiver has a nominal working E.H.T. voltage of 25.0 kV. Extreme caution should be exercised when working on the receiver with the back removed.
   Do not attempt to service this receiver if you are not conversant with the precautions and procedures for working on high voltage equipment.
   When handling or working on the C.R.T., always discharge the anode to the receiver chassis before removing the anode cap
   The C.R.T., if broken, will violently expel glass fragments. Use shatter proof goggles and take extreme care while handling.
   Do not hold the C.R.T. by the neck as this is a very dangerous practice.
2. It is essential that to maintain the safety of the customer all cable forms be replaced exactly as supplied from factory.
3. A small part of the chassis used in this receiver is, when operating, at approximately half mains potential at all times. It is therefore essential in the interest of safety that when serving or connecting any test equipment the receiver should be supplied via a suitable isolating transformer of adequate rating.
4. Replace blown fuses within the receiver with the fuse specified in the parts list.
5. When replacing wires or components to terminals or tags, wind the leads around the terminal before soldering. When replacing safety components identified by the international hazard symbols on the circuit diagram and parts list, it must be a Toshiba approved type and must be mounted as the original.
6. Keep wires away from high temperature components.

PRODUCT SAFETY NOTICE

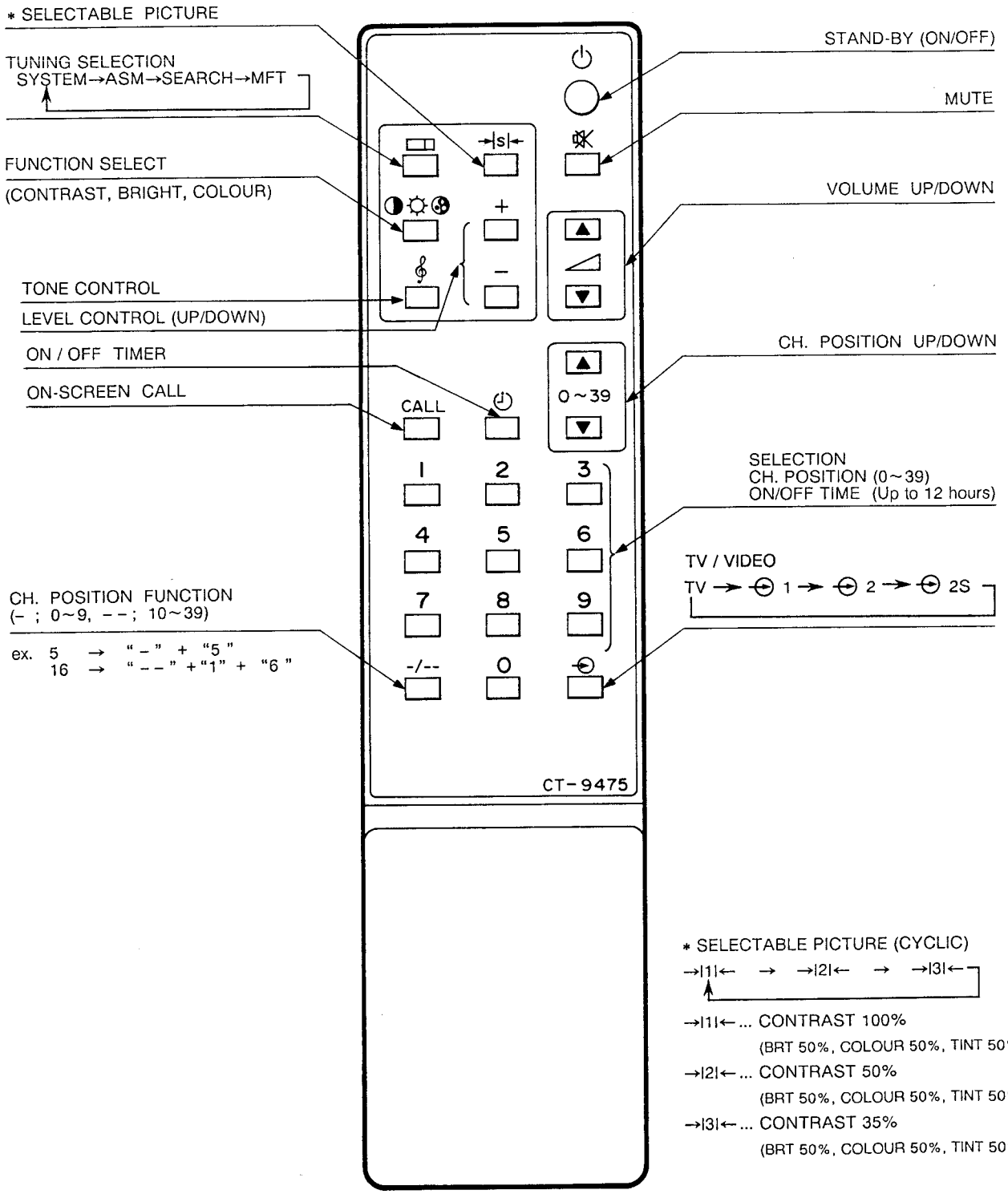
Many electrical and mechanical components in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-ray radiation protection afforded by them cannot necessarily be obtained by using replacements rated at higher voltages or wattage, etc.Components which have these special safety characteristics in this manual and its supplements are identified by the international hazard symbols on the schematic diagram and parts list. Before replacing any of these components read the parts list in this manual carefully. Substitute replacement components which do not have the same safety characteristics as specified in the parts list may create X-ray radiation.

FRONT CONTROLS AND REAR VIEWS





REMOTE HAND HELD UNIT



WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

INSTALLATION AND SERVICE ADJUSTMENTS

GENERAL INFORMATIONS

All adjustments are thoroughly checked and corrected when the receiver leaves the factory. Therefore the receiver should operate normally and produce proper colour and B/W pictures upon installation. However, several minor adjustments may be required depending on the particular location in which the receiver is operated.

This receiver is shipped completely in cardboard carton. Carefully draw out the receiver from the carton and remove all packing materials.

Plug the power cord into a convenient 220 volts 50 Hz AC two pin power outlet. Turn the receiver ON. Check and adjust all the customer controls such as BRIGHTNESS, CONTRAST and COLOUR Controls to obtain natural colour or B/W picture.

AUTOMATIC DEGAUSSING

A degaussing coil is mounted around the picture tube so that external degaussing after moving the receiver is normally unnecessary, providing the receiver is properly degaussed upon installation. The degaussing coil operates for about 1 second after the power to the receiver is switched ON. If the set is moved or faced in a different direction, the power switch must be switched off at least one hour in order that the automatic degaussing circuit operates properly. Should the chassis or parts of the cabinet become magnetized to cause poor colour purity, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube, the sides and front of the receiver and slowly withdraw the coil to a distance of about 2 m before disconnecting it from AC source. If colour shading still persists, perform the COLOUR PURITY ADJUSTMENT and CONVERGENCE ADJUSTMENTS procedures.

+120 VOLT POWER SUPPLY ADJUSTMENT (R851)

CAUTION: +B voltage closely relates to the high voltage. To prevent hazardous X-RAY RADIATION, the +B voltage must be properly adjusted to +120 volts.

1. Tune in an active channel. Adjust the BRIGHTNESS and CONTRAST Controls for normal picture.
2. Check that the AC power Line voltage is normal. (AC 220 volts, 50 Hz)
3. Connect a digital voltmeter to both leads of C451.
4. Adjust R851 for 120V reading on the meter.
5. Remove the digital voltmeter.

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST Controls to minimum (zero beam current).
3. High voltage will be measured below 29.0 kV.
4. Rotate the BRIGHTNESS Control to both extremes to be sure the high voltage does not exceed the limit of 29.0 kV under any conditions.

HEIGHT ADJUSTMENT

1. Receive the WG PHILIPS pattern, and set the contrast and colour to minimum, and the brightness to centre.
2. Change the VERT POSITION SW (S301) so the round shape in the pattern is located in the centre of screen.
3. HEIGHT Control (R351) changes the size of the picture or pattern, having an equal effect on the top and bottom. Make final adjustment to overscan the mask 2 cm at top and bottom.

HORIZONTAL CENTRE ADJUSTMENT

1. Receive the WG PHILIPS pattern.
2. Set the contrast and colour to minimum, and the bringhtness to centre.
3. Adjust H. CENTRE USER Control (R452) to the click (centre) position.
4. Adjust H. CENTRE SUB Control (R451) so the pattern centre can be located at the screen centre.

FOCUS ADJUSTMENT

Adjust FOCUS Control on FLYBACK TRANS.(T461) for well defined scanning lines in the centre area on the screen.

R-F AGC ADJUSTMENT

1. Tune the set in the strongest station in your area.
2. Turn RF AGC Control (R151) on PIF Board to fully counterclockwise position.
3. Adjust RF AGC Control clockwise until noise (snow) disappears on the screen.

BELL COIL (LM01) ADJUSTMENT

1. Receive SECAM colour bar signal.
2. Connect the synchroscope to the terminal pin 2 of LM01.
3. Adjust LM01 for the flat level of amplitude in each colour bar waveform on the scope. (See figure 1.)

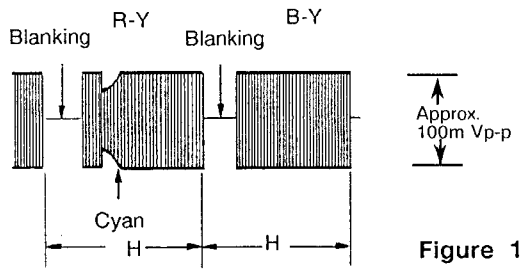


Figure 1.

IDENT COIL (LM04) ADJUSTMENT

1. Receive SECAM colour bar signal.
2. Connect the DC voltmeter (Digital Voltmeter) to the pin 23 of IC501.
3. Adjust LM04 for the maximum indication (approx. DC10V) on the meter.

B-Y, R-Y DEMOD COIL (LM02, LM03) ADJUSTMENT

1. Receive SECAM colour bar signal.
2. Set the COLOUR, BRIGHTNESS and CONTRAST Controls free.
3. Connect the synchroscope to the pin 62 of IC501.
4. Adjust LM02 so that the white level in picture part reaches to the vertical retrace line. (See figure 2.)
5. Then change the connection of synchroscope from the pin 62 to the pin 60 of IC501.
6. Adjust LM03 so that the white level in picture part reaches to the vertical retrace line. (See figure 3.)

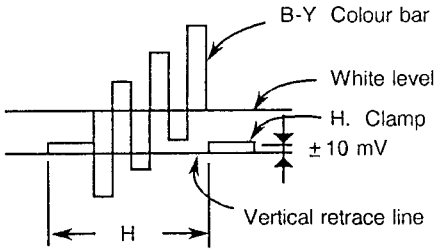


Figure 2.

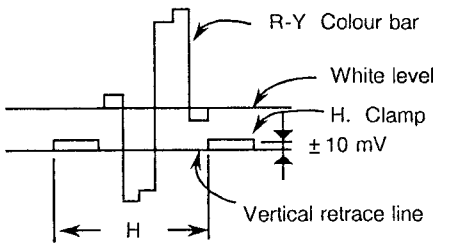


Figure 3.

PAL MATRIX ADJUSTMENT

1. Tune in the colour programme of the Philips pattern.
2. Set the COLOUR Control to obtain the proper colour.
3. If the PAL MATRIX adjustment is incorrect, the Venetian Blind would appear in the colour bars area. This case needs the adjustment.
4. At the first, adjust DL PHASE ADJ. Coil (L551) to minimize the Venetian Blind.
5. Next adjust 1H-DL ADJ. VR (R551) to minimize the Blind.
6. If the Venetian Blind still remains, adjust 1H-DL PHASE ADJ. Coil (L551) to minimize the Blind again.
7. Repeat the item 5 and 6 procedures, adjust the R551 and L551 until the Blind does not appear.

CRT GREY SCALE ADJUSTMENT

1. Tune in an active channel.
2. Turn the SCREEN Control (on T461) fuly counter-clockwise.
3. Set the RED, GREEN and BLUE CUT OFF Controls (R557, R558, R559) counterclockwise to the minimum position.
4. Set the GREEN and BLUE DRIVE Controls (R252, R253) to the mid position.
5. Set the CUT OFF SW. (S202) in the H. line position.
6. Short temporarily terminal of RASTER CHIP on the CRT DRIVE Board.
7. Set the CONTRAST, COLOUR Controls to minimum and BRIGHTNESS Control to centre.
8. Rotate the SCREEN Control gradually clockwise until the first horizontal line of a colour (RED, GREEN or BLUE) appears slightly on the screen. Set the SCREEN Control to this position.
9. Open the terminal of RASTER CHIP on the CRT DRIVE Board.
10. Adjust the CUT OFF Controls to obtain the slightly lighted horizontal lines in the same levels of three colours (RED, GREEN and BLUE). The lines may look like white if the CUT OFF Controls are adjusted properly.
11. Return the CUT OFF SW. (S202) in the receiving position.
12. Set the BRIGHTNESS Control to the maximum.
13. Adjust the BLUE and GREEN DRIVE Controls (R252/R253) to obtain proper white-balanced picture in high light areas.
14. Set the BRIGHTNESS and CONTRAST Controls to obtain dark grey raster. Then check the white balance in low brightness. If the white balance is not proper, retouch the CUT OFF Controls and DRIVE Controls to obtain a good white balance in both low and high light areas.

SUB-BRIGHTNESS ADJUSTMENT

1. Tune in a colour programme.
2. Set the CONTRAST Control to the maximum and the BRIGHTNESS Control to the centre.
3. Set the COLOUR Control to the minimum.
4. Set the SUB-BRIGHT. Control (R255) to the centre and leave the receiver for five minutes in this state.
5. Watching the picture well, adjust the SUB-BRIGHT. Control in the position where the picture does not show evidence of blooming in high bright area and not appear too dark in low bright portion.
6. Check the proper picture variation by rotating the CONTRAST and BRIGHTNESS Controls to both extremes.
7. If the picture does not appear dark with the CONTRAST and BRIGHTNESS Controls turned to the minimum, or not appear bright with the controls turned to the maximum, adjust the SUB-BRIGHT. Control again for the acceptable picture.

PICTURE I-F SWEEP ALIGNMENT

GENERAL..... Refer to figure 4 for test equipment connection.
PRELIMINARY STEPS ..... 1. Supply +12 volts to the IF Board.
2. Connect pin 12 of P101 to +12 V.
3. Connect pin 24 of IC101 to ground through a capacitor 10 μF.
4. Connect pin 29 of IC101 to ground.
SWEEP/MARKER GENERATOR..... Connect to pin 6 of P101 as shown in figure 4 on the IF Board. Set to 30 ~ 40 MHz sweep with signal level of 75 ~ 85 dBμ.
OSCILLOSCOPE..... Connect to pin 1 of IC101 on the IF Board through the detector.

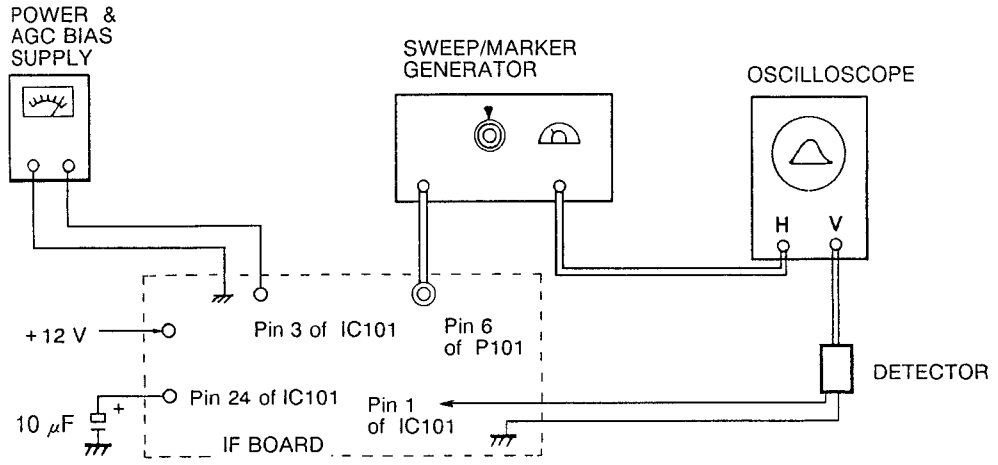


Figure 4. Picture IF Sweep Alignment

STEP	SWEEP/MARGER GENERATOR	ADJUST	REMARKS
1. Detector Coil	38.9 MHz Marker "ON"	L151	• Connet pin 10 of P101 on the IF Board to +12 V. • Supply +2 to +3 volts to pin 3 of IC101 to set the output level for 0.4 Vp-p on the scope. • Adjust L151 so that the marker (38.9 MHz) on the response can get zero beat with free-run frequency. (See figure 5.) • Remove the short of the pin 10 of P101. • After completing CN51 adjustment, repeat this step again.
2. Detector Capacitor	34.47 MHz Marker "ON"	CN51	• Connect to pin 10 of P101 on the IF Board to ground. • Supply +2 to +3 volts to pin 3 of IC101 to set the detection output for 0.4 Vp-p on the scope. • Adjust CN51 so that the marker (34.47 MHz) on the response can get zero beat with free-run frequency. (See figure 5.) • Remove the short of pin 10 of P101. • After completing L151 adjustment, repeat the step again.
After completing the above steps, disconnect the equipment and re-solder the liniks on the Main Board, and adjust the AGC Delay control (R151) following DELAYED RF AGC ADJUSTMENTS.			

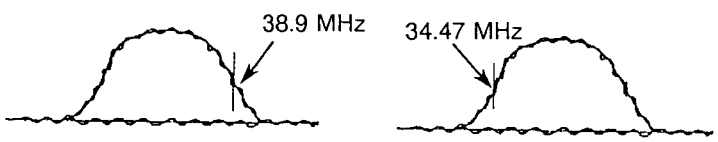


Figure 5. Magnified Response Curve

AFC ALIGNMENT

GENERAL ..... Refer to figure 6 for test equipment connection.

PRELIMINARY STEPS .....
1. Disconnect the IF Board from the Main Board.
2. Disconnect the solder link on the foil side of IF Board.
3. Supply +12 volts to the IF Board. (See figure 6.)
4. Short the collector of QN15 to ground.
5. Turn AGC DELAY Control (R151) on the IF Board fully clockwise.
6. Connect pin 12 of P101 to +12 V.

DVM ..... Connect to the resistor R128 (ⓔ in figure 6) and ground.

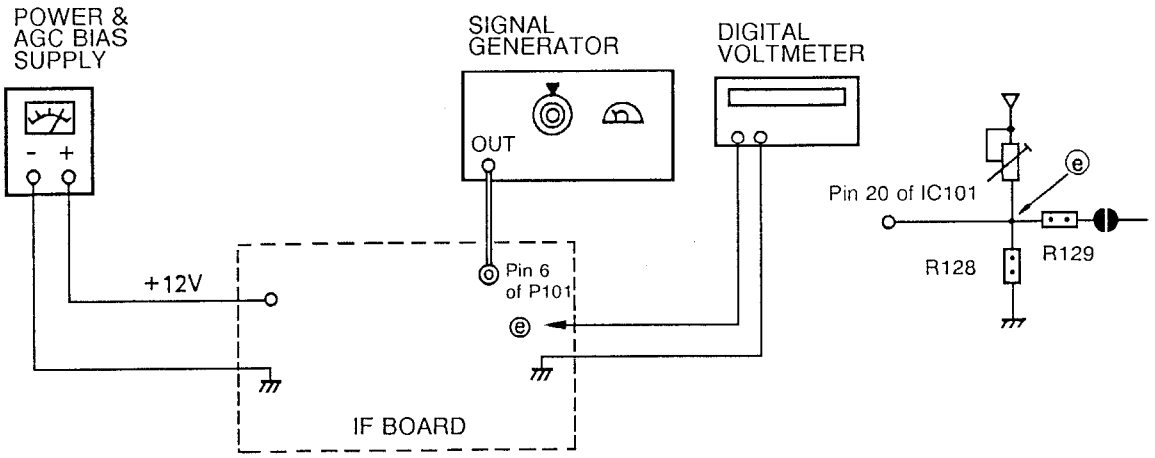


Figure 6. AFC Alignment

STEP	SIGNAL GENERATOR	ADJUST	REMARKS
1. AFC Balance (R153)	NO SIGNAL	R153	• Short the pin 3 of IC101 to ground. • Adjust R153 for 4.5 volts at the point ⓔ in figure 6.
2. AFC Coil (L153)	38.9 MHz CARRIER WAVE (Level : 75 to 85 dBμ)	L153	• Remove the short of pin 3 of IC101. • Apply +12 V to pin 10 of P101. • Connect IF carrier wave to the pin 6 of P101 in figure 6. • Adjust L153 for 4.3 volts on the meter at the point ⓔ. • After completing L152 adjustment, repeat this step again.
3. AFC Capacitor (L152)	34.47 MHz CARRIER WAVE (Level : 75 to 85 dbμ)	L152	• Connect pin 10 of P101 to ground. • Connect IF carrier wave to the pin 6 of P101 in figure 6. • Adjust L152 for 4.3 volts on the meter at the point ⓔ. • After completing L153 adjustment, repeat this step again.

SECAM DET-OUT & SOUND IF ALIGNMENT

L SECAM DET-OUT (R152) ADJUSTMENT

1. Disconnect the IF Board from the Main Board.
2. Supply +12 V to the IF Board.
   2-1 Short the base of QN15 to ground.
   2-2 Connect pin 12 of P101 to ground.
3. Set AGC to Self AGC condition.
4. Connect synchroscope to the emitter of Q103 through 10:1 probe.
5. Connect the 2-signal generator to IF input, and set up the generator as described below.
   IF frequency : 38.9 MHz
   Signal level : 75 to 85 dBμ
   Video modulation
   Positive modulation : 97%
   Video signal fH : 15.625 kHz
   Picture : Pattern with 100% white
6. Adjust the AC LEVEL Control (R152) for 2.0Vp-p on the scope.

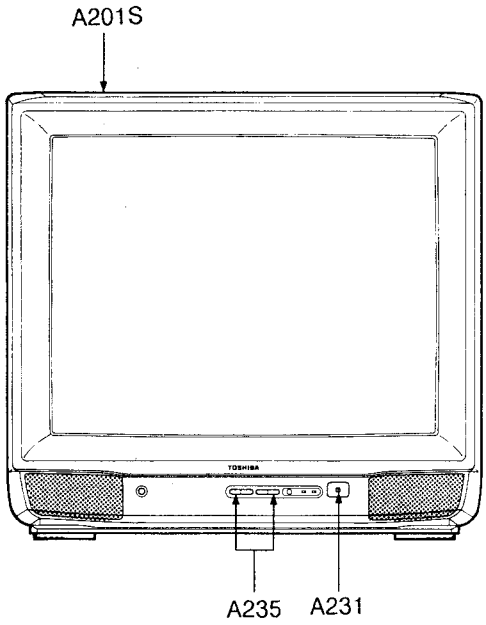
I-PAL SIF DET (L652) ADJUSTMENT

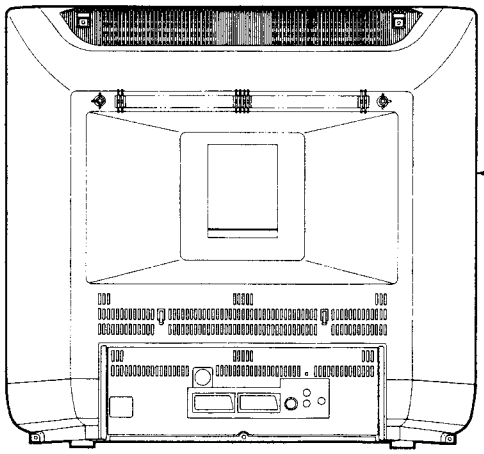
1. Disconnect the SIF Board from the Main Board.
2. Supply +12V to pin 1 and pin 11 of P601.
3. Connect SIF generator to base of Q602 through 0.01 μF capacitor.
4. Connect the oscilloscope to pin 3 of P601.
5. Set up the SIF generator as described below.
   Sound carrier frequency : 6.0 MHz
   Modulation frequency : 1000 Hz
   Frequency deviaiton : ±15 kHz
   Signal level : 80 dBμ
   (50 ohm load)
6. Adjust L652 for the maximum response of 1000 Hz det-out on scope.

B/G-PAL SOUND DET (L651) ADJUSTMENT

1. Disconnect the SIF Board from the Main Board.
2. Supply +12V to pin 1 of P601 and connect pin 11 of P601 to ground.
3. Connect the SIF generator to base of Q602 through 0.01 μF capacitor.
4. Connect the oscilloscope to pin 3 of P601.
5. Set up the SIF generator as described below.
   Sound carrier frequency : 5.5 MHz
   Modulation frequency : 1000 Hz
   Frequency deviaiton : ±15 kHz
   Signal level : 80 dBμ
   (50 ohm load)
6. Adjust L651 for the maximum response of 1000 Hz det-out on scope.

CABINET REPLACEMENT PARTS LIST





Location No.	Part No.	Description
A201S	23418687	Front Cover
A231	23443476	Button, POWER
A235	23443477	Button, UP-DOWN
A401	23423590	Back Cover
A411	23567315	Label, Model No., B/C
A701	23523726	Carton Box
A702	23934122	Packing, Bottom
A703	23934123	Packing, Top
A710	23567316	Label, Model No., Carton
Y101	23561095	Owner's Manual

CHASSIS REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION" , "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CAUTION: The international hazard symbols in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

NOTICE: The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

ABBREVIATIONS:

Capacitors..... CD : Ceramic Disk PF : Plastic Film EL : Electrolytic
Resistors..... CF : Carbon Film CC : Carbon Composition MF : Metal Film
OMF : Oxide Metal Film VR : Variable Resistor FR : Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITORS		
C101	24212102	CD, 1000pF, ±10%
C102	24212102	CD, 1000pF, ±10%
C103	24436101	CD, 100pF
C104	24797220	EL, 22μF, ±20%, 50V
C105	24232103	CD, 0.01μF, +80%, −20%
C106	24797229	EL, 2.2μF, ±20%, 50V
C107	24590473	PF, 0.047μF
C108	24636010	EL, 1μF, 50V
C109	24232103	CD, 0.01μF, +80%, −20%
C110	24232103	CD, 0.01μF, +80%, −20%
C111	24797229	EL, 2.2μF, ±20%, 50V
C112	24436470	CD, 47pF
C113	24797478	EL, 0.47μF, ±20%, 50V
C114	24794470	EL, 47μF, ±20%, 16V
C115	24232103	CD, 0.01μF, +80%, −20%
C116	24232103	CD, 0.01μF, +80%, −20%
C117	24085939	EL, 4.7μF, ±20%, 25V, Non-Polar
C119	24232103	CD, 0.01μF, +80%, −20%
C120	24212222	CD, 2200pF, ±10%
C121	24085988	EL, 1μF, ±20%, 50V, Non-Polar
C122	24590153	PF, 0.015μF
C123	24797478	EL, 0.47μF, ±20%, 50V
C124	24794101	EL, 100μF, ±20%, 16V
C125	24232103	CD, 0.01μF, +80%, −20%
C126	24212152	CD, 1500pF, ±10%
C127	24794471	EL, 470μF, ±20%, 16V
C160	24212102	CD, 1000pF, ±10%
C162	24212102	CD, 1000pF, ±10%
C163	24212102	CD, 1000pF, ±10%
C164	24232103	CD, 0.01μF, +80%, −20%
C165	24212102	CD, 1000pF, ±10%
C166	24212102	CD, 1000pF, ±10%
C169	24232103	CD, 0.01μF, +80%, −20%
C170	24212102	CD, 1000pF, ±10%
C180	24212102	CD, 1000pF, ±10%
C181	24212102	CD, 1000pF, ±10%
C182	24212102	CD, 1000pF, ±10%
C184	24232103	CD, 0.01μF, +80%, −20%

Location No.	Part No.	Description
C185	24212102	CD, 1000pF, ±10%
C201	24797100	EL, 10μF, ±20%, 50V
C202	24795101	EL, 100μF, 25V
C203	24232103	CD, 0.01μF, +80%, −20%
C204	24797220	EL, 22μF, ±20%, 50V
C205	24636478	EL, 0.47μF, 50V
C208	24212102	CD, 1000pF, ±10%
C209	24232103	CD, 0.01μF, +80%, −20%
C210	24797100	EL, 10μF, ±20%, 50V
C211	24212561	CD, 560pF, ±10%
C212	24538224	PF, 0.22μF
C213	24590104	PF, 0.1μF
C214	24794101	EL, 100μF, ±20%, 16V
C240	24538474	PF, 0.47μF
C241	24794100	EL, 10μF, ±20%, 16V
C301	24797229	EL, 2.2μF, ±20%, 50V
C302	24212152	CD, 1500pF, ±10%
C303	24617912	EL, 2.2μF, ±10%, 50V
C304	24212102	CD, 1000pF, ±10%
C306	24603563	PF, 0.056μF, ±10%, 100V
C307	24232103	CD, 0.01μF, +80%, −20%
C312	24590243	PF, 0.024μF
C313	24668101	EL, 100μF, ±20%, 35V
C314	24796102	EL, 1000μF, 35V
C315	24214221	CD, 220pF, ±10%, 500V
C316	24667332	EL, 3300μF, ±20%, 25V
C317	24617912	EL, 2.2μF, ±10%, 50V
C318	24082049	PF, 0.047μF, 100V
C319	24693224	PF, 0.22μF, 100V
C321	24214391	CD, 390pF, ±10%, 500V
C327	24693224	PF, 0.22μF, 100V
C328	24212272	CD, 2700pF, ±10%
C330	24796470	EL, 47μF, 35V
C360	24095945	PF, 0.47μF, 200V
C362	24212152	CD, 1500pF, ±10%
C363	24095948	PF, 0.36μF, 200V
C364	24212471	CD, 470pF, ±10%
C365	24797470	EL, 47μF, ±20%, 50V
C366	24593182	PF, 1800pF
C368	24590104	PF, 0.1μF
C373	24590273	PF, 0.027μF

Location No.	Part No.	Description
C374	24538474	PF, 0.47μF
C402	24353271	CD, 270pF
C403	24797339	EL, 3.3μF, ±20%, 50V
C405	24590203	PF, 0.02μF
C406	24590203	PF, 0.02μF
C407	24590243	PF, 0.024μF
C408	24797100	EL, 10μF, ±20%, 50V
C409	24232103	CD, 0.01μF, +80%, −20%
C412	24590182	PF, 1800pF
C413	24590182	PF, 1800pF
C414	24212471	CD, 470pF, ±10%
C416	24214271	CD, 270pF, ±10%, 500V
C417	24214332	CD, 3300pF, ±10%, 500V
C418	24790100	EL, 10μF, ±20%, 160V
C423	24232103	CD, 0.01μF, +80%, −20%
C424	24795470	EL, 47μF, ±20%, 25V
C425	24794101	EL, 100μF, ±20%, 16V
⚠ C440	24095888	PF, 0.01μF, ±3%, 1600V
C441	24214221	CD, 220pF, ±10%, 500V
C443	24214221	CD, 220pF, ±10%, 500V
C445	24095903	PF, 0.056μF, ±10%, 250V
⚠ C446	24829273	PF, 0.027μF, 400V
C447	24700479	EL, 4.7μF, ±20%, 250V
C448	24795102	EL, 1000μF, ±20%, 25V
C449	24794471	EL, 470μF, ±20%, 16V
C451	24640962	EL, 33μF, ±20%, 200V
⚠ C463	24212222	CD, 2200pF, ±10%
C464	24092346	CD, 1200pF, ±10%, 2kV
C465	24095946	PF, 0.43μF, 200V
C466	24640933	EL, 1μF, ±20%, 200V
C470	24212102	CD, 1000pF, ±10%
C502	24797100	EL, 10μF, ±20%, 50V
C503	24436101	CD, 100pF
C504	24436101	CD, 100pF
C505	24590273	PF, 0.027μF
C506	24232103	CD, 0.01μF, +80%, −20%
C507	24590103	PF, 0.01μF
C508	24085944	EL, 2.2μF, ±20%, 50V, Non-Polar
C509	24797220	EL, 22μF, ±20%, 50V
C510	24232103	CD, 0.01μF, +80%, −20%
C511	24232103	CD, 0.01μF, +80%, −20%
C512	24353200	CD, 20pF
C513	24353330	CD, 33pF
C515	24797220	EL, 22μF, ±20%, 50V
C516	24590104	PF, 0.1μF
C517	24590104	PF, 0.1μF
C518	24232103	CD, 0.01μF, +80%, −20%
C519	24232103	CD, 0.01μF, +80%, −20%
C520	24797478	EL, 0.47μF, ±20%, 50V
C521	24538474	PF, 0.47μF
C522	24538474	PF, 0.47μF
C523	24538474	PF, 0.47μF
C524	24232103	CD, 0.01μF, +80%, −20%
C525	24436820	CD, 82pF
C526	24436820	CD, 82pF
C527	24436820	CD, 82pF
C530	24796220	EL, 22μF, ±20%, 35V
C532	24436300	CD, 30pF
C533	24436330	CD, 33pF
C534	24436200	CD, 20pF
C535	24636100	EL, 10μF, 50V
C536	24636478	EL, 0.47μF, 50V
C537	24794101	EL, 100μF, ±20%, 16V

Location No.	Part No.	Description
C539	24232103	CD, 0.01μF, +80%, −20%
C540	24633100	EL, 10μF, 16V
C550	24232103	CD, 0.01μF, +80%, −20%
C551	24212102	CD, 1000pF, ±10%
C601	24212102	CD, 1000pF, ±10%
C603	24232103	CD, 0.01μF, +80%, −20%
C604	24794470	EL, 47μF, ±20%, 16V
C605	24598911	PF, 910pF
C606	24598821	PF, 820pF
C607	24590104	PF, 0.1μF
C608	24797100	EL, 10μF, ±20%, 50V
C609	24232103	CD, 0.01μF, +80%, −20%
C610	24232103	CD, 0.01μF, +80%, −20%
C611	24232103	CD, 0.01μF, +80%, −20%
C612	24436470	CD, 47pF
C613	24436470	CD, 47pF
C614	24232103	CD, 0.01μF, +80%, −20%
C615	24590473	PF, 0.047μF
C616	24590473	PF, 0.047μF
C617	24232103	CD, 0.01μF, +80%, −20%
C651	24590683	PF, 0.068μF
C653	24590683	PF, 0.068μF
C661	24085031	EL, 1μF, ±20%, 25V, Non-Polar
C664	24593102	PF, 1000pF
C665	24636229	EL, 2.2μF, 50V
C666	24636010	EL, 1μF, 50V
C667	24633470	EL, 47μF, 16V
C668	24085031	EL, 1μF, ±20%, 25V, Non-Polar
C669	24232103	CD, 0.01μF, +80%, −20%
C671(U101)	24212102	CD, 1000pF, ±10%
C671(U903)	24797470	EL, 47μF, ±20%, 50V
C672	24633100	EL, 10μF, 16V
C673	24593102	PF, 1000pF
C674	24636010	EL, 1μF, 50V
C675	24636010	EL, 1μF, 50V
C676	24636010	EL, 1μF, 50V
C677	24795101	EL, 100μF, 25V
C678	24636229	EL, 2.2μF, 50V
C679	24795101	EL, 100μF, 25V
C680	24636229	EL, 2.2μF, 50V
C681	24795101	EL, 100μF, 25V
C683	24795470	EL, 47μF, ±20%, 25V
C684	24795471	EL, 470μF, ±20%, 25V
C685	24795102	EL, 1000μF, ±20%, 25V
C689	24795470	EL, 47μF, ±20%, 25V
C690	24795471	EL, 470μF, ±20%, 25V
C692	24636010	EL, 1μF, 50V
C693	24794100	EL, 10μF, ±20%, 16V
C699	24795470	EL, 47μF, ±20%, 25V
C801	24098999	PF, 0.1μF, ±20%, AC250V
C802	24098999	PF, 0.1μF, ±20%, AC250V
C805	24094656	CD, 2200pF, ±20%, AC400V
C806	24094656	CD, 2200pF, ±20%, AC400V
C815	24092281	CD, 4700pF, ±20%, AC250V
C816	24092281	CD, 4700pF, ±20%, AC250V
C817	24092281	CD, 4700pF, ±20%, AC250V
C818	24092281	CD, 4700pF, ±20%, AC250V
C820	24086856	EL, 270μF, ±20%, 400V
C821	24436101	CD, 100pF
C822	24797100	EL, 10μF, ±20%, 50V
C823	24590682	PF, 6800pF
C824	24630747	EL, 22μF, ±20%, 25V

Location No.	Part No.	Description
C825	24212102	CD, 1000pF, ±10%
C826	24092339	CD, 330pF, ±10%, 2kV
C827	24232103	CD, 0.01μF, +80%, −20%
C828	24095914	PF, 2200pF, ±3%, 1600V
C829	24797010	EL, 1μF, ±20%, 50V
C830	24797101	EL, 100μF, ±20%, 50V
C831	24436331	CD, 330pF
C832	24590822	PF, 8200pF
C833	24092336	CD, 180pF, ±10%, 2kV
C834	24086939	EL, 330μF, ±20%, 200V
C835	24797220	EL, 22μF, ±20%, 50V
C836	24214331	CD, 330pF, ±10%, 500V
C837	24795222	EL, 2200μF, 25V
C901	24644479	EL, 4.7μF, 250V
C902	24095923	PF, 4700pF, 1600V
CA01	24212331	CD, 330pF, ±10%
CA07	24212102	CD, 1000pF, ±10%
CA08	24232103	CD, 0.01μF, +80%, −20%
CA09	24794470	EL, 47μF, ±20%, 16V
CA10	24232103	CD, 0.01μF, +80%, −20%
CA11	24212472	CD, 4700pF, ±10%
CA12	24212561	CD, 560pF, ±10%
CA13	24794100	EL, 10μF, ±20%, 16V
CA14	24794470	EL, 47μF, ±20%, 16V
CA15	24232103	CD, 0.01μF, +80%, −20%
CA16	24232103	CD, 0.01μF, +80%, −20%
CA17	24232103	CD, 0.01μF, +80%, −20%
CA18	24232103	CD, 0.01μF, +80%, −20%
CA19	24232103	CD, 0.01μF, +80%, −20%
CA20	24797010	EL, 1μF, ±20%, 50V
CA21	24436391	CD, 390pF
CA22	24436221	CD, 220pF
CA23	24538104	PF, 0.1μF
CA24	24538104	PF, 0.1μF
CA25	24797229	EL, 2.2μF, ±20%, 50V
CA26	24232103	CD, 0.01μF, +80%, −20%
CA27	24590104	PF, 0.1μF
CA28	24538104	PF, 0.1μF
CA30	24797479	EL, 4.7μF, ±20%, 50V
CA31	24232103	CD, 0.01μF, +80%, −20%
CA32	24794471	EL, 470μF, ±20%, 16V
CA34	24212102	CD, 1000pF, ±10%
CA36	24590104	PF, 0.1μF
CA41	24636479	EL, 4.7μF, 50V
CH01	24797010	EL, 1μF, ±20%, 50V
CH02	24797010	EL, 1μF, ±20%, 50V
CH03	24797010	EL, 1μF, ±20%, 50V
CH04	24797010	EL, 1μF, ±20%, 50V
CH05	24797010	EL, 1μF, ±20%, 50V
CH06	24797010	EL, 1μF, ±20%, 50V
CH07	24797100	EL, 10μF, ±20%, 50V
CM01	24436221	CD, 220pF
CM02	24436221	CD, 220pF
CM05	24232103	CD, 0.01μF, +80%, −20%
CM06	24357270	CD, 27pF
CM07	24590563	PF, 0.056μF
CM08	24232103	CD, 0.01μF, +80%, −20%
CM10	24436270	CD, 27pF
CN02	24436150	CD, 15pF
CN07	24436360	CD, 36pF
CN09	24232103	CD, 0.01μF, +80%, −20%
CN10	24436101	CD, 100pF
CN11	24353080	CD, 8pF, ±0.25pF
CN12	24353220	CD, 22pF

Location No.	Part No.	Description
CN13	24232103	CD, 0.01μF, +80%, −20%
CN16	24212102	CD, 1000pF, ±10%
CN17	24212102	CD, 1000pF, ±10%
CN20	24232103	CD, 0.01μF, +80%, −20%
CN22	24232103	CD, 0.01μF, +80%, −20%
CN51	24094959	Variable Capacitor, 2 to 12pF, 50V
CV01	24797229	EL, 2.2μF, ±20%, 50V
CV02	24797229	EL, 2.2μF, ±20%, 50V
CV03	24797220	EL, 22μF, ±20%, 50V
CV04	24797229	EL, 2.2μF, ±20%, 50V
CV05	24797229	EL, 2.2μF, ±20%, 50V
CV06	24797100	EL, 10μF, ±20%, 50V
CV07	24797100	EL, 10μF, ±20%, 50V
CV08	24797229	EL, 2.2μF, ±20%, 50V
CV09	24797229	EL, 2.2μF, ±20%, 50V
CV10	24797100	EL, 10μF, ±20%, 50V
CV11	24797229	EL, 2.2μF, ±20%, 50V
CV12	24797229	EL, 2.2μF, ±20%, 50V
CV13	24797100	EL, 10μF, ±20%, 50V
CV15	24797010	EL, 1μF, ±20%, 50V
CV16	24232103	CD, 0.01μF, +80%, −20%
CV17	24232103	CD, 0.01μF, +80%, −20%
CV18	24794100	EL, 10μF, ±20%, 16V
CV22	24794100	EL, 10μF, ±20%, 16V
CV24	24794471	EL, 470μF, ±20%, 16V
CV27	24794100	EL, 10μF, ±20%, 16V
CV29	24085944	EL, 2.2μF, ±20%, 50V, Non-Polar
CV31	24794471	EL, 470μF, ±20%, 16V
CX02	24538474	PF, 0.47μF
CX03	24538474	PF, 0.47μF
CX04	24538474	PF, 0.47μF

RESISTORS

R101	24366222	CF, 2200 ohm
R102	24366124	CF, 120k ohm
R103	24366222	CF, 2200 ohm
R104	24366332	CF, 3300 ohm
R105	24367103	CF, 10k ohm, ±2%
R106	24367473	CF, 47k ohm, ±2%
R107	24366103	CF, 10k ohm
R108	24366102	CF, 1k ohm
R109	24366822	CF, 8200 ohm
R110	24366562	CF, 5600 ohm
R111	24366561	CF, 560 ohm
R112	24366332	CF, 3300 ohm
R113	24366112	CF, 1100 ohm
R114	24366222	CF, 2200 ohm
R115	24366101	CF, 100 ohm
R116	24366471	CF, 470 ohm
R117	24366112	CF, 1100 ohm
R118	24366470	CF, 47 ohm
R119	24366472	CF, 4700 ohm
R120	24366154	CF, 150k ohm
R121	24366331	CF, 330 ohm
R122	24366820	CF, 82 ohm
R123	24366241	CF, 240 ohm
R124	24366181	CF, 180 ohm
R125	24366331	CF, 330 ohm
R126	24366101	CF, 100 ohm
R127	24552101	OMF, 100 ohm, 1/2W
R128	24366334	CF, 330k ohm
R129	24366101	CF, 100 ohm

Location No.	Part No.	Description
R130	24366513	CF, 51k ohm
R131	24366753	CF, 75k ohm
R132	24366684	CF, 680k ohm
R133	24366272	CF, 2700 ohm
R134	24366223	CF, 22k ohm
R135	24366151	CF, 150 ohm
R151	24066953	VR, 5k ohm, 1/10W
R152	24066951	VR, 20k ohm, 1/10W
R153	24066946	VR, 1M ohm, 1/10W
R160	24366680	CF, 68 ohm
R161	24366680	CF, 68 ohm
R163	24366682	CF, 6800 ohm
R164	24366102	CF, 1k ohm
R165	24366562	CF, 5600 ohm
R166	24366560	CF, 56 ohm
R167	24552101	OMF, 100 ohm, 1/2W
R168	24366680	CF, 68 ohm
R169	24366682	CF, 6800 ohm
R170	24366102	CF, 1k ohm
R171	24366562	CF, 5600 ohm
R172	24366101	CF, 100 ohm
R173	24552101	OMF, 100 ohm, 1/2W
R183	24366562	CF, 5600 ohm
R184	24366122	CF, 1200 ohm
R185	24366562	CF, 5600 ohm
R186	24366560	CF, 56 ohm
R187	24552101	OMF, 100 ohm, 1/2W
R201	24366271	CF, 270 ohm
R202	24366101	CF, 100 ohm
R203	24366182	CF, 1800 ohm
R204	24366152	CF, 1500 ohm
R205	24366392	CF, 3900 ohm
R208	24366101	CF, 100 ohm
R209	24366103	CF, 10k ohm
R210	24366203	CF, 20k ohm
R211	24366622	CF, 6200 ohm
R212	24366103	CF, 10k ohm
R213	24366101	CF, 100 ohm
R214	24366182	CF, 1800 ohm
R215	24366152	CF, 1500 ohm
R216	24366333	CF, 33k ohm
R217	24366101	CF, 100 ohm
R218	24366472	CF, 4700 ohm
R219	24366472	CF, 4700 ohm
R220	24366753	CF, 75k ohm
R221	24366564	CF, 560k ohm
R222	24366751	CF, 750 ohm
R223	24366103	CF, 10k ohm
R224	24366333	CF, 33k ohm
R225	24366132	CF, 1300 ohm
R226	24366104	CF, 100k ohm
R227	24366105	CF, 1M ohm
R228	24366104	CF, 100k ohm
R229	24366303	CF, 30k ohm
R230	24366102	CF, 1k ohm
R231	24366103	CF, 10k ohm
R232	24366473	CF, 47k ohm
R233	24366102	CF, 1k ohm
R234	24366223	CF, 22k ohm
R235	24366473	CF, 47k ohm
R236	24366103	CF, 10k ohm
R237	24366224	CF, 220k ohm
R241	24366101	CF, 100 ohm
R242	24366912	CF, 9100 ohm

Location No.	Part No.	Description
R243	24366183	CF, 18k ohm
R244	24366103	CF, 10k ohm
R245	24366103	CF, 10k ohm
R252	24066598	VR, 2k ohm, 1/10W
R253	24066598	VR, 2k ohm, 1/10W
R255	24066601	VR, 20k ohm, 1/10W
R301	24366301	CF, 300 ohm
R302	24366244	CF, 240k ohm
R303	24366203	CF, 20k ohm
R304	24366102	CF, 1k ohm
R305	24366161	CF, 160 ohm
R306	24366471	CF, 470 ohm
R309	24366102	CF, 1k ohm
R311	24552242	OMF, 2400 ohm, 1/2W
R312	24366203	CF, 20k ohm
R316	24552561	OMF, 560 ohm, 1/2W
⚠ R317	24383271	OMF, 270 ohm, 2W
R318	24366203	CF, 20k ohm
R321	24366183	CF, 18k ohm
R322	24366754	CF, 750k ohm
R323	24322828	OMF, 0.82 ohm, 1W
R325	24552122	OMF, 1200 ohm, 1/2W
⚠ R327	24556309	FR, 3.0 ohm, ±10%, 1/2W
R328	24322479	OMF, 4.7 ohm, 1W
R329	24381472	OMF, 4700 ohm, 1/2W
R333	24366471	CF, 470 ohm
R335	24552561	OMF, 560 ohm, 1/2W
R351	24066602	VR, 50k ohm, 1/10W
R356	24066926	VR, 10k ohm, 1/10W
R357	24066921	VR, 500k ohm, 1/10W
R358	24066928	VR, 2k ohm, 1/10W
R361	24367243	CF, 24k ohm, ±2%
R362	24367682	CF, 560 ohm, ±2%
R363	24367223	CF, 22k ohm, ±2%
R364	24366823	CF, 82k ohm
R366	24366473	CF, 47k ohm
R367	24366104	CF, 100k ohm
R369	24552682	OMF, 6800 ohm, 1/2W
R370	24366682	CF, 6800 ohm
R371	24367243	CF, 24k ohm, ±2%
R372	24003984	MF, 1k ohm, 1/4W
R375	24366182	CF, 1800 ohm
R376	24366102	CF, 1k ohm
R377	24366184	CF, 180k ohm
R378	24366364	CF, 360k ohm
R380	24366153	CF, 15k ohm
R384	24366103	CF, 10k ohm
R386	24322479	OMF, 4.7 ohm, 1W
R387	24366474	CF, 470k ohm
R390	24366155	CF, 1.5M ohm
R391	24366155	CF, 1.5M ohm
R402	24366273	CF, 27k ohm
R403	24366302	CF, 3k ohm
R404	24381432	OMF, 4300 ohm, 1/2W
R405	24366511	CF, 510 ohm
R407	24366201	CF, 200 ohm
R408	24366682	CF, 6800 ohm
R411	24366361	CF, 360 ohm
R412	24366221	CF, 220 ohm
⚠ R416	24007620	Cement, 4300 ohm, 5W
R418	24382432	OMF, 4300 ohm, 1W
R419	24366510	CF, 51 ohm
R420	24553102	OMF, 1k ohm, 1W
R421	24366105	CF, 1M ohm

Location No.	Part No.	Description
R423	24552221	OMF, 220 ohm, 1/2W
R440	24376243	CF, 24k ohm, 1/2W
R441	24552103	OMF, 10k ohm, 1/2W
R446	24532151	FR, 150 ohm, 1W
⚠ R448	24984279	MF, 2.7 ohm, 2W
R451	24066601	VR, 20k ohm, 1/10W
R452	24069547	VR, 5k ohm, 0.08W, CC
R501	24366821	CF, 820 ohm
R502	24366334	CF, 330k ohm
R503	24366202	CF, 2k ohm
R504	24366391	CF, 390 ohm
R505	24366822	CF, 8200 ohm
R507	24366822	CF, 8200 ohm
R508	24366821	CF, 820 ohm
R509	24366203	CF, 20k ohm
R510	24366101	CF, 100 ohm
R511	24366562	CF, 5600 ohm
R512	24366152	CF, 1500 ohm
R513	24366152	CF, 1500 ohm
R515	24366221	CF, 220 ohm
R516	24366221	CF, 220 ohm
R517	24366221	CF, 220 ohm
R521	24366562	CF, 5600 ohm
R522	24360185	CF, 1.8M ohm, 1/8W
R523	24366102	CF, 1k ohm
R524	24366103	CF, 10k ohm
R525	24366103	CF, 10k ohm
R526	24366122	CF, 1200 ohm
R527	24366122	CF, 1200 ohm
⚠ R529	24007642	Cement, 5600 ohm, 5W
R531	24366102	CF, 1k ohm
R532	24366302	CF, 3k ohm
R533	24366132	CF, 1300 ohm
R534	24376104	CF, 100k ohm, 1/2W
R535	24366392	CF, 3900 ohm
R536	24376104	CF, 100k ohm, 1/2W
R537	24366132	CF, 1300 ohm
R538	24366392	CF, 3900 ohm
R539	24366132	CF, 1300 ohm
R540	24376104	CF, 100k ohm, 1/2W
R541	24366821	CF, 820 ohm
R542	24366271	CF, 270 ohm
R543	24366512	CF, 5100 ohm
R544	24366101	CF, 100 ohm
R545	24366101	CF, 100 ohm
R547	24366471	CF, 470 ohm
R548	24366471	CF, 470 ohm
R549	24366471	CF, 470 ohm
R551	24066955	VR, 1k ohm, 1/10W
R557	24066598	VR, 2k ohm, 1/10W
R558	24066598	VR, 2k ohm, 1/10W
R559	24066598	VR, 2k ohm, 1/10W
R564	24366101	CF, 100 ohm
R565	24366101	CF, 100 ohm
R567	24366101	CF, 100 ohm
R570	24366912	CF, 9100 ohm
R571	24366912	CF, 9100 ohm
R572	24366912	CF, 9100 ohm
R573	24366104	CF, 100k ohm
⚠ R591	24383153	OMF, 15k ohm, 2W
⚠ R592	24383153	OMF, 15k ohm, 2W
⚠ R593	24383153	OMF, 15k ohm, 2W
R601	24366222	CF, 2200 ohm
R602	24366561	CF, 560 ohm

Location No.	Part No.	Description
R603	24366222	CF, 2200 ohm
R604	24366563	CF, 56k ohm
R605	24366563	CF, 56k ohm
R606	24366102	CF, 1k ohm
R607	24366102	CF, 1k ohm
R609	24366102	CF, 1k ohm
R610	24366102	CF, 1k ohm
R611	24366102	CF, 1k ohm
R615	24366102	CF, 1k ohm
R625	24366102	CF, 1k ohm
R626	24366102	CF, 1k ohm
R627	24366103	CF, 10k ohm
R628	24366473	CF, 47k ohm
R629	24366105	CF, 1M ohm
R630	24366105	CF, 1M ohm
R631	24366562	CF, 5600 ohm
R632	24366223	CF, 22k ohm
R633	24366472	CF, 4700 ohm
R634	24366682	CF, 6800 ohm
R635	24366103	CF, 10k ohm
R637	24366182	CF, 1800 ohm
R638	24366102	CF, 1k ohm
R640	24366103	CF, 10k ohm
R642	24366103	CF, 10k ohm
R650	24366332	CF, 3300 ohm
R653	24366682	CF, 6800 ohm
R654	24366682	CF, 6800 ohm
R660	24366332	CF, 3300 ohm
R661	24366103	CF, 10k ohm
R662	24366102	CF, 1k ohm
R663	24366103	CF, 10k ohm
R664	24366472	CF, 4700 ohm
R665	24366103	CF, 10k ohm
R666	24366223	CF, 22k ohm
R667	24366103	CF, 10k ohm
R668	24366562	CF, 5600 ohm
R669	24366562	CF, 5600 ohm
R670(U101)	24366183	CF, 18k ohm
R670(U903)	24366154	CF, 150k ohm
R671(U101)	24366242	CF, 2400 ohm
R671(U903)	24366154	CF, 150k ohm
R672(U101)	24366561	CF, 560 ohm
R672(U903)	24366472	CF, 4700 ohm
R673(U101)	24366271	CF, 270 ohm
R673(U903)	24366223	CF, 22k ohm
R674	24366821	CF, 820 ohm
R675(U101)	24366821	CF, 820 ohm
R675(U903)	24366104	CF, 100k ohm
R676	24366473	CF, 47k ohm
R677	24366473	CF, 47k ohm
R678	24366104	CF, 100k ohm
R679	24366821	CF, 820 ohm
R680	24366223	CF, 22k ohm
R681	24366229	CF, 2.2 ohm
R682	24366229	CF, 2.2 ohm
R683	24322159	OMF, 1.5 ohm, 1W
R684	24552331	OMF, 330 ohm, 1/2W
R685	24552331	OMF, 330 ohm, 1/2W
R687	24366683	CF, 68k ohm
R690	24366273	CF, 27k ohm
R699	24366332	CF, 3300 ohm
R801	24004914	CC, 5.6M ohm, 1/2W
⚠ R802	24007932	Cement, 6.2 ohm, 10W
R810	24377334	CF, 330k ohm, 1W

Location No.	Part No.	Description
R814	24366823	CF, 82k ohm
R815	24366221	CF, 220 ohm
R816	24367122	CF, 1200 ohm, ±2%
R817	24321398	OMF, 0.39 ohm, 1/2W
⚠ R818	24384203	OMF, 20k ohm, 3W
R819	24366689	CF, 6.8 ohm
R820	24366102	CF, 1k ohm
⚠ R821	24007778	Cement, 180 ohm, 7W
R822	24366390	CF, 39 ohm
R823	24367822	CF, 8200 ohm, ±2%
R824	24366123	CF, 12k ohm
⚠ R825	24531620	FR, 62 ohm, 1/2W
⚠ R826	24007552	Cement, 8200 ohm, 5W
R828	24367102	CF, 1k ohm, ±2%
R829	24382473	OMF, 47k ohm, 1W
R830	24366272	CF, 2700 ohm
R831	24366103	CF, 10k ohm
⚠ R832	24383331	OMF, 330 ohm, 2W
R836	24004945	MF, 0.18 ohm, 1W
⚠ R837	24000900	FR, 0.47 ohm, ±10%, 1W
R838	24366392	CF, 3900 ohm
R851	24066954	VR, 2k ohm, 1/10W
⚠ R890	24000630	PTC Thermistor, Dual
R901	24946272	CC, 2700 ohm, ±10%, 1/2W
R902	24946272	CC, 2700 ohm, ±10%, 1/2W
R903	24946272	CC, 2700 ohm, ±10%, 1/2W
⚠ R920	24000961	FR, 2.2 ohm, 2W
RA01	24366102	CF, 1k ohm
RA02	24366102	CF, 1k ohm
RA04	24366681	CF, 680 ohm
RA05	24366101	CF, 100 ohm
RA06	24366101	CF, 100 ohm
RA07	24366101	CF, 100 ohm
RA08	24366102	CF, 1k ohm
RA09	24366103	CF, 10k ohm
RA10	24366102	CF, 1k ohm
RA11	24366472	CF, 4700 ohm
RA12	24366102	CF, 1k ohm
RA13	24366472	CF, 4700 ohm
RA14	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA19	24366103	CF, 10k ohm
RA20	24366102	CF, 1k ohm
RA21	24366102	CF, 1k ohm
RA22	24366103	CF, 10k ohm
RA23	24366471	CF, 470 ohm
RA24	24366102	CF, 1k ohm
RA25	24366103	CF, 10k ohm
RA27	24366392	CF, 3900 ohm
RA28	24366471	CF, 470 ohm
RA30	24366271	CF, 270 ohm
RA31	24366102	CF, 1k ohm
RA33	24366103	CF, 10k ohm
RA35	24366103	CF, 10k ohm
RA36	24366102	CF, 1k ohm
RA37	24366102	CF, 1k ohm
RA38	24366153	CF, 15k ohm
RA39	24366153	CF, 15k ohm
RA40	24366473	CF, 47k ohm
RA41	24366153	CF, 15k ohm
RA42	24366473	CF, 47k ohm
RA43	24366153	CF, 15k ohm
RA44	24366102	CF, 1k ohm
RA45	24366223	CF, 22k ohm

Location No.	Part No.	Description
RA46	24366333	CF, 33k ohm
RA48	24366153	CF, 15k ohm
RA49	24366333	CF, 33k ohm
RA60	24366333	CF, 33k ohm
RA61	24360225	CF, 2.2M ohm, 1/8W
RA62	24366752	CF, 7500 ohm
RA64	24946226	CC, 22M ohm, ±10%, 1/2W
RA65	24366103	CF, 10k ohm
RA67	24366152	CF, 1500 ohm
RA68	24366123	CF, 12k ohm
RA69	24366823	CF, 82k ohm
RA70	24366153	CF, 15k ohm
RA71	24366102	CF, 1k ohm
RA72	24366103	CF, 10k ohm
RA73	24366223	CF, 22k ohm
RA74	24366223	CF, 22k ohm
RA75	24366102	CF, 1k ohm
RA78	24366103	CF, 10k ohm
RA86	24366392	CF, 3900 ohm
⚠ RA97	24383103	OMF, 10k ohm, 2W
RB01	24366333	CF, 33k ohm
RB03	24366103	CF, 10k ohm
RB04	24366103	CF, 10k ohm
RB05	24366332	CF, 3300 ohm
RB06	24366473	CF, 47k ohm
RC06	24366222	CF, 2200 ohm
RC08	24366222	CF, 2200 ohm
RH01	24366102	CF, 1k ohm
RH02	24366152	CF, 1500 ohm
RH03	24366102	CF, 1k ohm
RH04	24366182	CF, 1800 ohm
RH05	24366102	CF, 1k ohm
RH07	24366102	CF, 1k ohm
RH09	24366102	CF, 1k ohm
RH11	24366101	CF, 100 ohm
RH32	24366332	CF, 3300 ohm
RM03	24366182	CF, 1800 ohm
RM04	24366242	CF, 2400 ohm
RM05	24366221	CF, 220 ohm
RM06	24366221	CF, 220 ohm
RN02	24366102	CF, 1k ohm
RN05	24366392	CF, 3900 ohm
RN08	24366103	CF, 10k ohm
RN16	24366103	CF, 10k ohm
RN17	24366473	CF, 47k ohm
RN19	24366473	CF, 47k ohm
RN20	24366152	CF, 1500 ohm
RN21	24366103	CF, 10k ohm
RN22	24366751	CF, 750 ohm
RN23	24366512	CF, 5100 ohm
RN26	24366512	CF, 5100 ohm
RN27	24366202	CF, 2k ohm
RN28	24366113	CF, 11k ohm
RN32	24366105	CF, 1M ohm
RN36	24366103	CF, 10k ohm
RN37	24366473	CF, 47k ohm
RN38	24366562	CF, 5600 ohm
RN39	24366562	CF, 5600 ohm
RN40	24366562	CF, 5600 ohm
RN41	24366152	CF, 1500 ohm
RN44	24366152	CF, 1500 ohm
RN45	24366473	CF, 47k ohm
RN46	24366103	CF, 10k ohm
RN47	24366473	CF, 47k ohm

Location No.	Part No.	Description
RN48	24366103	CF, 10k ohm
RR01	24366102	CF, 1k ohm
RR06	24366471	CF, 470 ohm
RV01	24366821	CF, 820 ohm
RV02	24366102	CF, 1k ohm
RV03	24366102	CF, 1k ohm
RV04	24366102	CF, 1k ohm
RV05	24366101	CF, 100 ohm
RV06	24366101	CF, 100 ohm
RV07	24366102	CF, 1k ohm
RV08	24366102	CF, 1k ohm
RV09	24366101	CF, 100 ohm
RV10	24366102	CF, 1k ohm
RV11	24366102	CF, 1k ohm
RV12	24366101	CF, 100 ohm
RV13	24366103	CF, 10k ohm
RV14	24366103	CF, 10k ohm
RV15	24366101	CF, 100 ohm
RV16	24366473	CF, 47k ohm
RV17	24366473	CF, 47k ohm
RV18	24366332	CF, 3300 ohm
RV19	24366222	CF, 2200 ohm
RV20	24366101	CF, 100 ohm
RV21	24366332	CF, 3300 ohm
RV22	24366332	CF, 3300 ohm
RV23	24366473	CF, 47k ohm
RV24	24552750	OMF, 75 ohm, 1/2W
RV25	24366331	CF, 330 ohm
RV26	24366391	CF, 390 ohm
RV27	24366473	CF, 47k ohm
RV29	24366472	CF, 4700 ohm
RV30	24366102	CF, 1k ohm
RV31	24366910	CF, 91 ohm
RV32	24366820	CF, 82 ohm
RV33	24366332	CF, 3300 ohm
RV34	24366473	CF, 47k ohm
RV35	24366104	CF, 100k ohm
RV36	24366104	CF, 100k ohm
RV37	24366473	CF, 47k ohm
RV39	24366910	CF, 91 ohm
RV40	24366680	CF, 68 ohm
RV41	24366103	CF, 10k ohm
RV42	24366750	CF, 75 ohm
RV43	24366510	CF, 51 ohm
RV44	24366510	CF, 51 ohm
RV45	24366510	CF, 51 ohm
RV46	24366101	CF, 100 ohm
RV47	24366104	CF, 100k ohm
RV48	24366102	CF, 1k ohm
RV49	24366102	CF, 1k ohm
RV60	24366220	CF, 22 ohm
RV61	24366220	CF, 22 ohm
RV62	24366220	CF, 22 ohm
RV63	24366562	CF, 5600 ohm
RV64	24366562	CF, 5600 ohm
RV65	24366104	CF, 100k ohm
RV66	24366562	CF, 5600 ohm
RV67	24366562	CF, 5600 ohm
RV68	24366471	CF, 470 ohm
RV69	24366473	CF, 47k ohm
RV70	24366473	CF, 47k ohm
RV71	24366332	CF, 3300 ohm
RV72	24366103	CF, 10k ohm
RV73	24366680	CF, 68 ohm

Location No.	Part No.	Description
RX02	24366102	CF, 1k ohm
RX05	24366101	CF, 100 ohm
RX08	24366101	CF, 100 ohm
RX10	24366101	CF, 100 ohm
RX13	24366102	CF, 1k ohm
COILS & TRANSFORMERS		
L101	23237987	Coil, Peaking, TRF4100AC
L102	23262680	Coil, IF, TRF1148D
L103	23237987	Coil, Peaking, TRF4100AC
L104	23237987	Coil, Peaking, TRF4100AC
L105	23238934	Coil, Peaking, TRF4109AC
L107	23237987	Coil, Peaking, TRF4100AC
L151	23262668	Coil, IF, TRF1162T
L152	23262663	Coil, IF, TRF1157T
L153	23262813	Coil, IF, TRF1077D
L161	23201004	Coil, RF Choke, TRF9202B
L162	23261985	Coil, RF Choke, TRF9221
L181	23261985	Coil, RF Choke, TRF9221
L201	23237974	Coil, Peaking, TRF4121AC
L311	23103901	Coil (Ferrite Bead), TEM2017
L315	23237987	Coil, Peaking, TRF4100AC
L362	23211896	Coil, Choke, AT4043/60T
L363	23211897	Coil, Choke, AT4043/100T
L406	23103859	Coil (Ferrite Bead), TEM2011
L411	23233097	Coil, Linearity, TLN2149G
L414	23221936	Coil, Choke, TLN3041
L441	23238934	Coil, Peaking, TRF4109AC
⚠ L462	.....	DY, Supplied with V901
L503	23237987	Coil, Peaking, TRF4100AC
L551	23250972	Coil, 1H-Delay Matching, TRF5418D
L590	23289221	Coil, Peaking, TRF4221AF
L601	23262680	Coil, IF, TRF1148D
L602	23262821	Coil, Peaking, TRF4100AF
L604	23237986	Coil, Peaking, TRF4120AC
L651	23232942	Coil, Variable, TRF3077
L652	23232942	Coil, Variable, TRF3077
L801	23221050	Coil, RF Choke, TLN1015
L802	23103859	Coil (Ferrite Bead), TEM2011
L803	23221747	Coil, Choke, TRF9253D
L804	23221747	Coil, Choke, TRF9253D
L805	23222694	Coil, Width, TLN2026
L806	23103859	Coil (Ferrite Bead), TEM2011
L807	23222694	Coil, Width, TLN2026
⚠ L901	23200749	Coil, Degaussing, TSB2247
LA01	23238934	Coil, Peaking, TRF4109AC
LA02	23221685	Coil, Choke, TLN3193
LB01	23262778	Coil, IF, TRF1112
LM01	23262797	Coil, IF, TRF1093D
LM02	23250865	Coil, IF, TRF5414DA
LM03	23250865	Coil, IF, TRF5414DA
LM04	23262798	Coil, IF, TRF1092D
LN02	23237985	Coil, Peaking, TRF4150AC
⚠ T401	23224997	Transformer, Horiz. Drive, TLN1027
⚠ T461	23236089	Transformer, Flyback, G4218
⚠ T801	23211875	Line Filter, TRF3157
⚠ T803	23217074	Transformer, Converter, 47003593
SEMICONDUCTORS		
IC101	23318437	IC, μPC1820CA
IC303	23119142	IC, AN5521

Location No.	Part No.	Description
IC361	23318231	IC, TEA2031A
IC408	23319203	IC, MC7812CT
IC501	B0379475	IC, TA8659AN
IC601	23318390	IC, TDA4480-2
IC660	23118327	IC, AN7178
IC667	B0356190	IC, TA7630P
IC801	23318232	IC, TDA4601
IC807	23318299	IC, L78MR05-FA
ICA01	23319152	IC, M34300-588SP
ICA02	23318482	IC, M6M80011AP
ICA04	23119441	IC, LA7910
ICH01	23119139	IC, AN5862K
ICV01	B0383505	IC, TA8720AN
Q102	23114691	Transistor, BC557A
Q103	23118980	Transistor, BC337
Q104	23114689	Transistor, BC547A
Q161	A6708871	Transistor, 2SC388ATM
Q162	A6708871	Transistor, 2SC388ATM
Q163	A6708871	Transistor, 2SC388ATM
Q201	23114689	Transistor, BC547A
Q202	23114691	Transistor, BC557A
Q203	23114689	Transistor, BC547A
Q204	A6041876	Transistor, 2SK117-GR FA-2
Q205	A6342200	Transistor, 2SC2878-A
Q206	23114689	Transistor, BC547A
Q208	23114689	Transistor, BC547A
Q362	23114689	Transistor, BC547A
Q363	23114689	Transistor, BC547A
Q364	23114689	Transistor, BC547A
Q402	A678971D	Transistor, 2SC1569 FA-5
⚠ Q404	23314376	Transistor, ON4408
Q406	23314229	Transistor, 2SD1378-Q
Q502	23114691	Transistor, BC557A
Q503	23114691	Transistor, BC557A
Q505	23114693	Transistor, BF871
Q506	23114689	Transistor, BC547A
Q507	23114693	Transistor, BF871
Q508	23114689	Transistor, BC547A
Q509	23114693	Transistor, BF871
Q510	23114689	Transistor, BC547A
Q514	23114688	Transistor, BC327
Q516	23114689	Transistor, BC547A
Q602	23114689	Transistor, BC547A
Q603	23114689	Transistor, BC547A
Q604	A6041876	Transistor, 2SK117-GR FA-2
Q605	A6041876	Transistor, 2SK117-GR FA-2
Q606	23114689	Transistor, BC547A
Q607	23114689	Transistor, BC547A
Q608	23114689	Transistor, BC547A
Q661	23114691	Transistor, BC557A
Q662	23114691	Transistor, BC557A
Q663	23114689	Transistor, BC547A
Q664	23114689	Transistor, BC547A
Q665	A6342200	Transistor, 2SC2878-A
Q666	A6342200	Transistor, 2SC2878-A
Q671	A6708871	Transistor, 2SC388ATM
Q672	A6708871	Transistor, 2SC388ATM
Q699	23114691	Transistor, BC557A
Q802	23314376	Transistor, ON4408
Q803	23314246	Transistor, 2SC2023 LF-4
Q804	A6547303	Transistor, 2SA1321
Q805	A6325067	Transistor, 2SC2230A-Y
Q806	23114546	Transistor, BC557B
QA05	23114689	Transistor, BC547A

Location No.	Part No.	Description
QA06	23114632	Transistor, BC547B
QA07	23114689	Transistor, BC547A
QA09	23114691	Transistor, BC557A
QA10	23114689	Transistor, BC547A
QA11	23114546	Transistor, BC557B
QB01	23114689	Transistor, BC547A
QB02	23114689	Transistor, BC547A
QH03	23114689	Transistor, BC547A
QH04	23114689	Transistor, BC547A
QH05	23114689	Transistor, BC547A
QN08	23114691	Transistor, BC557A
QN11	A6041876	Transistor, 2SK117-GR FA-2
QN13	23114689	Transistor, BC547A
QN15	23114689	Transistor, BC547A
QN16	23114689	Transistor, BC547A
QV02	23114691	Transistor, BC557A
QV03	23114689	Transistor, BC547A
QV05	23114689	Transistor, BC547A
QV06	23114689	Transistor, BC547A
QV07	23114689	Transistor, BC547A
QV09	23114632	Transistor, BC547B
QV10	23114689	Transistor, BC547A
QV11	A6342200	Transistor, 2SC2878-A
D201	23115599	Diode, 1N4148
D202	23115599	Diode, 1N4148
D241	A7150041	Diode, 1SS104
D302	23118479	Diode, BYD33J
D305	23118479	Diode, BYD33J
D314	A7117205	Diode, Zener, 04AZ12X
D315	A7116715	Diode, Zener, 04AZ7.5Y
D361	A7117705	Diode, Zener, 04AZ20X
D362	23115599	Diode, 1N4148
D363	23118633	Diode, Zener, RD3.0ES-B2
D366	23115599	Diode, 1N4148
D367	23115599	Diode, 1N4148
D368	A7118135	Diode, Zener, 04AZ30R
D401	A7116925	Diode, Zener, 04AZ9.1Z
D402	A7117715	Diode, Zener, 04AZ20Y
D403	A7117215	Diode, Zener, 04AZ12Y
D406	23118479	Diode, BYD33J
D408	23118052	Diode, RU4Z
D409	A7117015	Diode, Zener, 04AZ10Y
D410	A7116815	Diode, Zener, 04AZ8.2Y
D440	23118995	Diode, BY228
D441	23118994	Diode, BYW95C
D593	23115599	Diode, 1N4148
D594	23115599	Diode, 1N4148
D595	23115599	Diode, 1N4148
D601	23115599	Diode, 1N4148
D660	A7117935	Diode, Zener, 04AZ24R
D696	23115599	Diode, 1N4148
D697	23115599	Diode, 1N4148
D698	23115599	Diode, 1N4148
D699	23115599	Diode, 1N4148
D803	23118173	Diode, RBV-406M-LFA
D805	23118479	Diode, BYD33J
D806	23118479	Diode, BYD33J
D807	23118479	Diode, BYD33J
D808	23118736	Diode, BYV96E
D809	23118451	Diode, RU4A
D810	23118052	Diode, RU4Z
D811	23118479	Diode, BYD33J
D812	A7116515	Diode, Zener, 04AZ6.2Y
DA05	23115599	Diode, 1N4148

Location No.	Part No.	Description
DA07	23115599	Diode, 1N4148
DA15	23115599	Diode, 1N4148
DA16	23115599	Diode, 1N4148
DA17	23115599	Diode, 1N4148
DA20	23115599	Diode, 1N4148
DA21	23115599	Diode, 1N4148
DA22	23115599	Diode, 1N4148
DA30	23115878	Diode, Zener, μPC574J(L)
DA31	23115599	Diode, 1N4148
DA33	23115599	Diode, 1N4148
DA37	23118698	Diode, Zener, 04AZ4.7X
DE40	23118969	Diode (LED), MV57124, Red
DE41	23318436	Diode (LED), MV53124A, Yellow
DH01	23115599	Diode, 1N4148
DH02	23115599	Diode, 1N4148
DH03	23115599	Diode, 1N4148
DH04	23115599	Diode, 1N4148
DH05	23115599	Diode, 1N4148
DH06	23115599	Diode, 1N4148
DH07	A7116215	Diode, Zener, 04AZ4.7Y
DN02	23115599	Diode, 1N4148
DN04	A7288601	Diode, 1S2186 FA-1
DN05	A7116305	Diode, Zener, 04AZ5.1X
DN06	A7288601	Diode, 1S2186 FA-1
DN07	A7288601	Diode, 1S2186 FA-1
DN08	A7288601	Diode, 1S2186 FA-1
DN09	A7288601	Diode, 1S2186 FA-1
DN11	A7288601	Diode, 1S2186 FA-1
DN12	A7288601	Diode, 1S2186 FA-1
DN20	A7288601	Diode, 1S2186 FA-1
DN21	A7288601	Diode, 1S2186 FA-1
DV01	A7116915	Diode, Zener, 04AZ9.1Y
DV02	23115599	Diode, 1N4148
DV03	A7116215	Diode, Zener, 04AZ4.7Y

MISCELLANEOUS

⚠ F801	23144896	Fuse, 2.0A
F801A	23165102	Fuse Holder
⚠ F802	23144876	Fuse, 0.5A
F802A	23165102	Fuse Holder
K901	23120303	Remote Sensor, IR-9109-K
P601	23367681	Plug, 8P
P661	23365432	Earphone Jack
⚠ P801	23176697	Power Cord
PH01	23365598	21 Pin Connector
PH02	23365598	21 Pin Connector
PV01	23365515	Jack, 4P
PV02	23365604	Jack, Phono, 3P
S202	23145542	Switch, Lever, 1C3P
S301	23145682	Switch, Lever, 1C3P
⚠ S801	23145434	Switch, Power, 2C2P
SA01	23145430	Switch, Push, 1C1P
SA02	23145430	Switch, Push, 1C1P
SA03	23145430	Switch, Push, 1C1P
SA04	23145430	Switch, Push, 1C1P
⚠ V901A	23902353	Socket, CRT, 10P
W201	23250870	Delay-Line, TRF2100
W661	23151199	Speaker, SPK-1267, 60x70mm, 8 ohm
W662	23151199	Speaker, SPK-1267, 60x70mm, 8 ohm
X401	23153886	Ceramic Resonator, 503kHz, TCR1012
X501	23153979	Crystal, 4.43MHz
X502	23250950	Coil, 1H-Delay Line, DL711
Z101	A5615249	PIF SAW Filter, F1804D
Z102	23153725	Ceramic Resonator, TCR1043
Z103	23107911	Ceramic Video Trap, 5.5 to 6MHz, TCF1019
Z104	23107658	Ceramic Video Trap, 5.74MHz, TCF1052
Z201	23107925	Ceramic Video Trap, 6.5MHz, TCF1013
Z602	A5613025	L-Secam WSSF, F328EM
Z603	23107948	Ceramic Filter, 6.0MHz, SFE6.0MBF
Z604	23107855	Ceramic Filter, 5.5MHz, TCF1031
ZA01	23153741	Ceramic Resonator, TCR1029
ZA02	24000788	Resistor Block, 4700 ohmx4, 1/8W
ZV01	23107849	Ceramic Video Trap, 4.43MHz, TCF1032

PC BOARD ASSEMBLIES

U101A	23337501	PIF Board, PB0977-1
U101B	23337502	SIF Board, PB0977-2
U101C	23337503	A/V Board, PB0977-3
U902A	23337504	Main Board, PB0978
U903A	23336921	CRT Drive Board, PB0158-1
U903B	23336922	Power Board, PB0158-2
U903C	23336923	DPC Board, PB0158-3
U903D	23336924	Audio Board, PB0158-4
U903E	23336919	Headphone Board, PB0156-4

PICTURE TUBE

⚠ V901	23312379	Picture Tube, A59ECY13X31

TUNER

H001	23121626	Tuner, VHF/UHF, EG449

REMOTE HAND SET PARTS

K902	23120357	Remote Hand Unit, CT-9475
AT01	23304487	Upper Case
AT02	23300919	Lower Case
AT03	23300920	Battery Cover
AT04	23300921	Filter
ST01	23304488	Rubber Sheet
UT01	23336217	PC Board, PW9933
ZT01	23153736	Ceramic Resoantor, CSB455EB20

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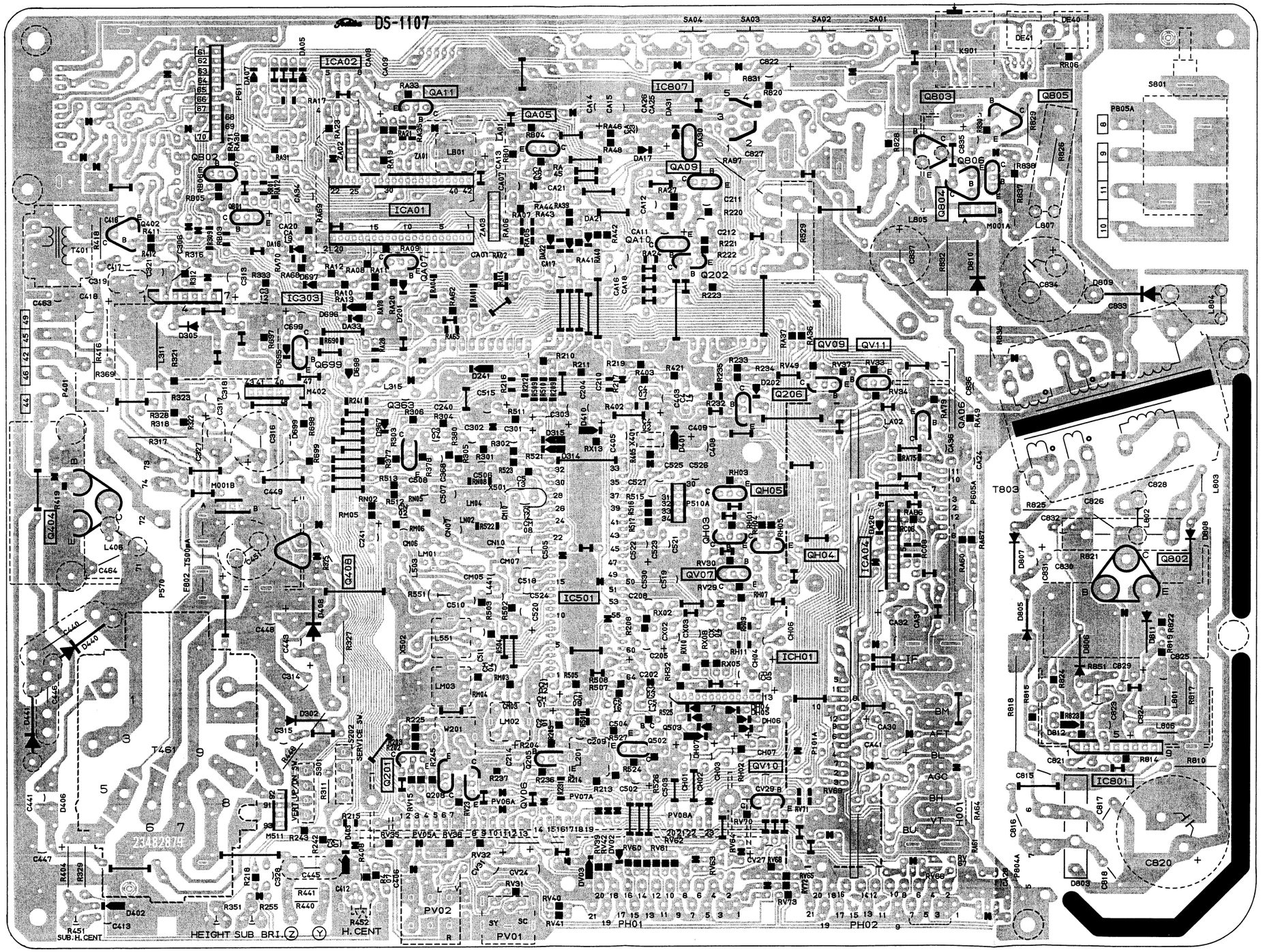
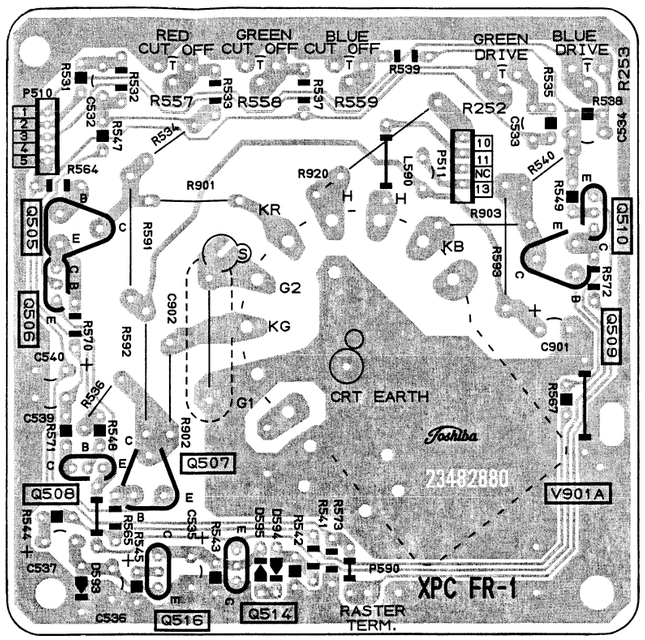
MAIN BOARD PB0978

BOTTOM (FOIL) SIDE



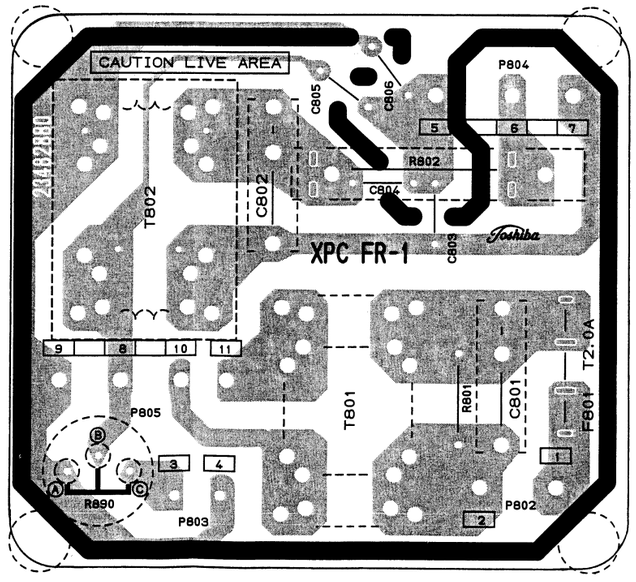
CRT DRIVE BOARD PB0158-1

BOTTOM (FOIL) SIDE



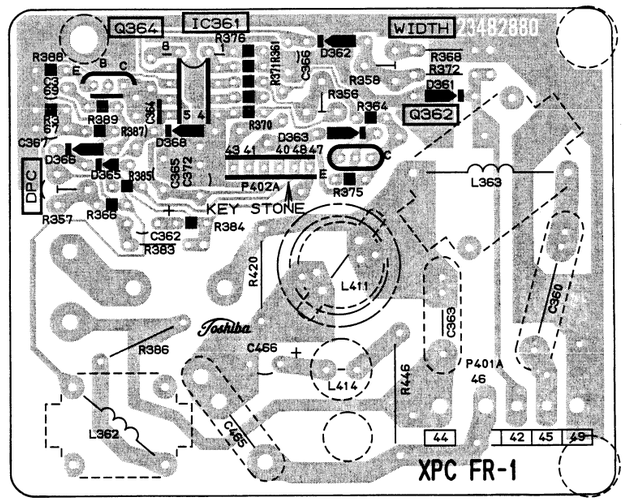
POWER BOARD PB0158-2

BOTTOM (FOIL) SIDE



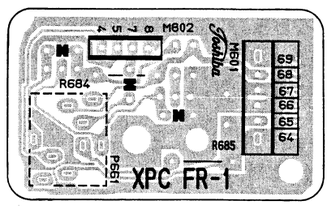
DPC BOARD PB0158-3

BOTTOM (FOIL) SIDE



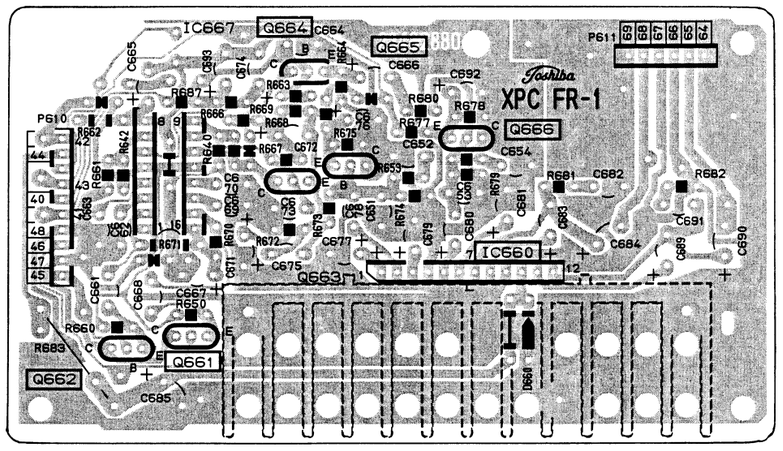
HEADPHONE BOARD PB0156-5

BOTTOM (FOIL) SIDE



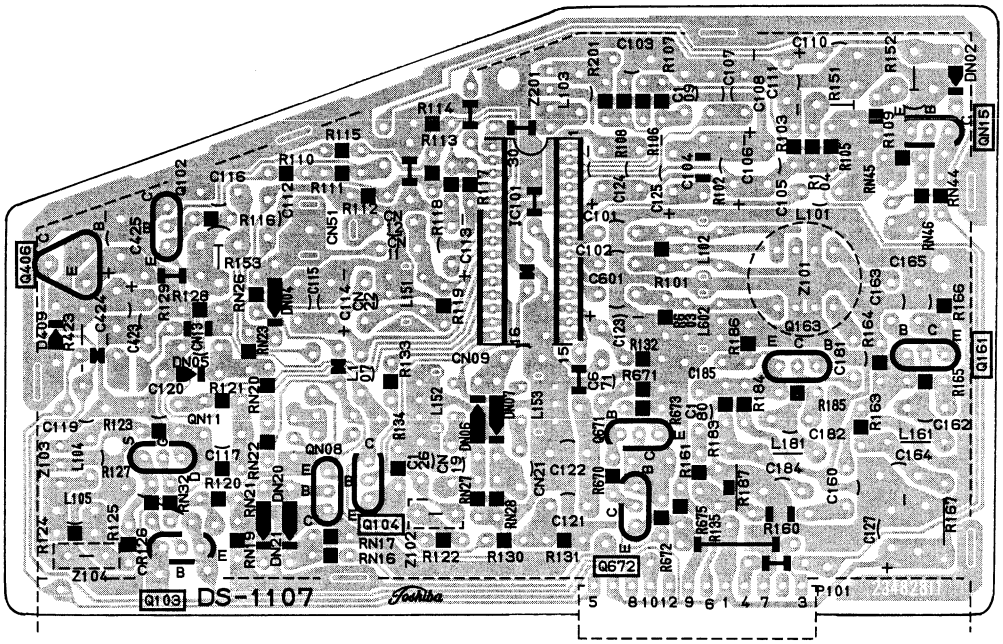
AUDIO BOARD PB0158-4

BOTTOM (FOIL) SIDE



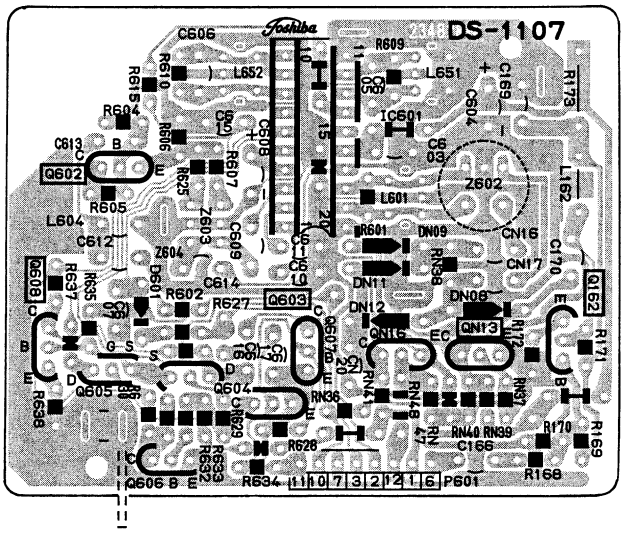
PIF BOARD PB0977-1

BOTTOM (FOIL) SIDE



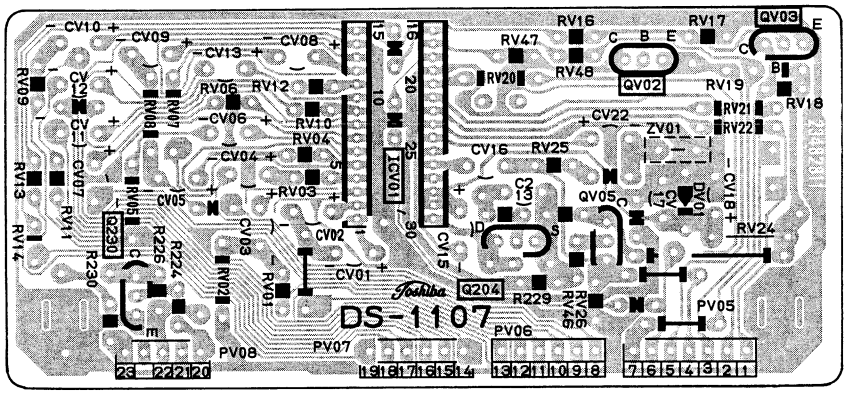
SIF BOARD PB0977-2

BOTTOM (FOIL) SIDE



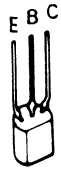
A/V BOARD PB0977-3

BOTTOM (FOIL) SIDE



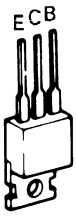
TERMINAL VIEW OF TRANSISTORS

① BC327
BC337
BC547A
BC547B
BC547C
BC557A
BC557B
BC556A

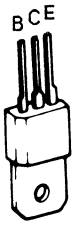


② 2SK30ATM
2SK117

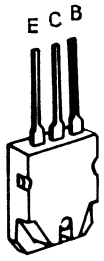
③ BD202



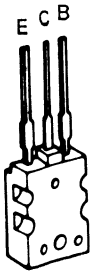
④ BF871
2SD553
2SC1569



⑤ 2SC3678
2SC3182N



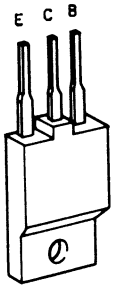
⑥ 2SD1427
2SD1432



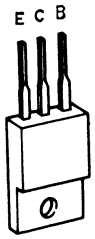
⑦ 2SC2482
2SA1321
2SC2230
2SA1020
2SC2655
2SC752GTM

⑧ 2SC388ATM
2SA1015
2SC1959
2SA562TM

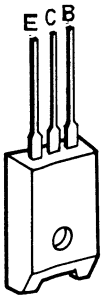
⑨ 2SD1548



⑩ 2SC2023



⑪ ON4409
ON4408



MEMO

2502SFT

SCHEMATIC DIAGRAM (1/2)

1	AUDIO OUT(R)	
2	AUDIO IN(R)	
3	AUDIO OUT(L)	
4	AUDIO EARTH	
5	EARTH	
6	AUDIO IN(L)	
7	BLUE IN	
8	EXT/TV	
9	GREEN EARTH	
10	NC	
11	GREEN IN	
12	NC	
13	RED EARTH	
14	NC	
15	RED IN	
16	RAPID BLANKING	
17	VIDEO EARTH	
18	RAPID BLK EARTH	
19	VIDEO OUT	
20	VIDEO IN	
21	SHIELD EARTH	

U902

TO AUDIO BOARD

PB11 10P

AUDIO VDD

+12V

(TONE)

(VOL.)

(MUTE)

(AUDIO'L'R')

PH02 21PIN S-VHS

PH01 21 FULL

PV02

PV01

U101B SIF BOARD PB0977-2

U101A PIF BOARD PB0977-1

U101C A/V SW. BOARD PB0977-3

QA01 M34300-588SP

QA04 LA7910

QA05 BC547A

QA06 BC547B

Q208 BC547A

QV10 BC547A

QV11 2SC2878A

QV09 BC547B

Q201 BC547A

Q202 2SK117GR

Q203 BC547A

Q204 2SK117GR

QV01 TA8720AN

QV05 BC547A

QV02 BC557A

QB01 BC547A

QB02 BC547A

QB03 BC547A

LA01 PL-1J

LA02 TLH3193

LB01 TRF1112

ZA01 TCR1029

ZV01 4.43MHz

DA01 04AZ9.1Y

DA02 1N4148

DA03 04AZ4.7Y

DA15 1N4148

DA16 1N4148

DA17 1N4148

DA20 1N4148

DA21 1N4148

DA22 1N4148

DA30 μPC574J (L)

DA31 1N4148

DA33 1N4148

DA37 04AZ4.7X

DE40 MV57124(RED)

K901 IR-9109K REMOTE SENSOR

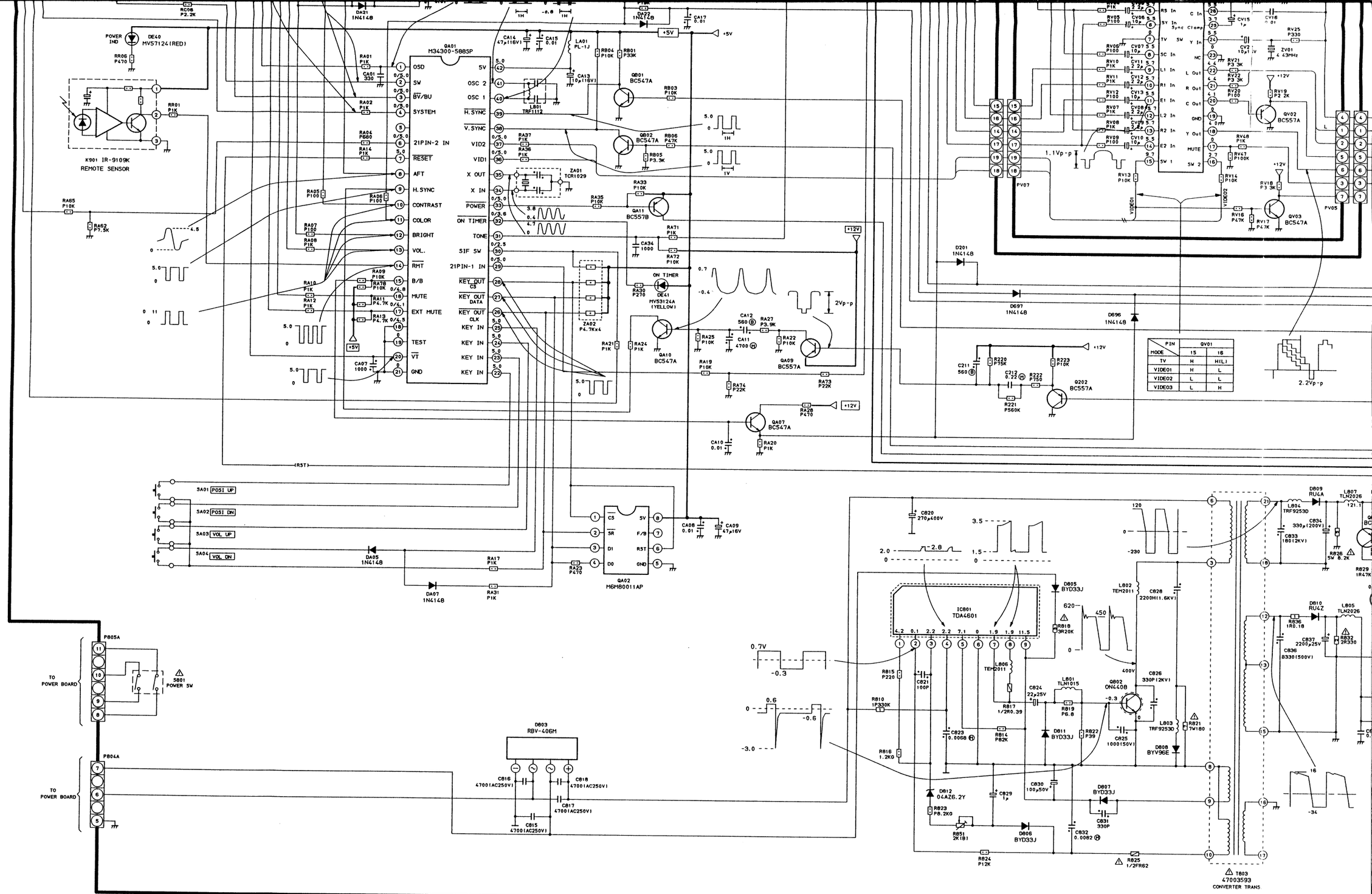
H001 E6449

MODE	4Pin
MULTI	H
FRANCE	L

MODE	2Pin	3Pin
VL	L	L
VH	H	L
U	L	H

2.3Vp-p

1.1Vp-p

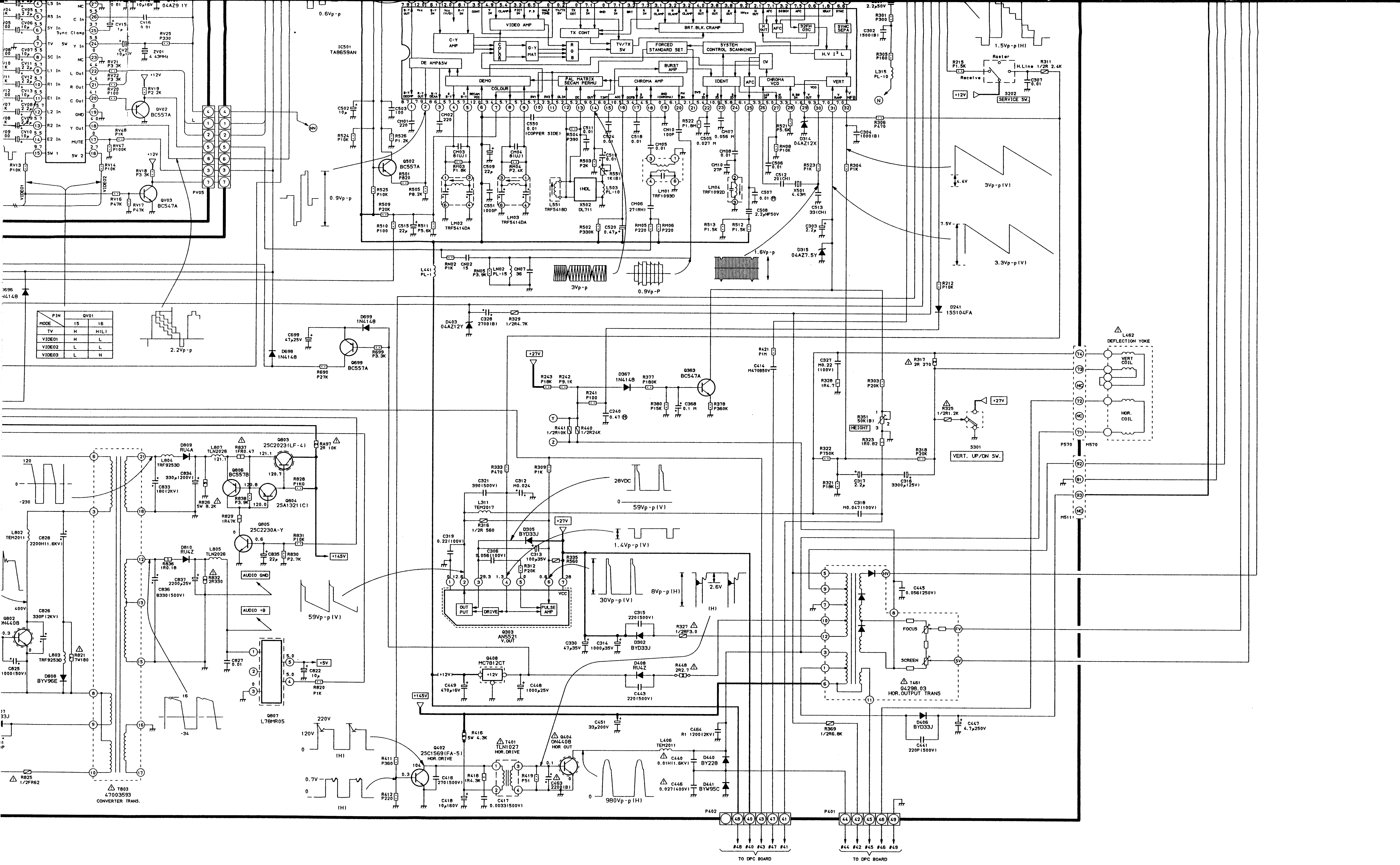

QA01 M34300-588SP
OSD
SW
BV/BU
SYSTEM
2IPIN-2 IN
RESET
AFT
H.SYNC
CONTRAST
COLOR
BRIGHT
VOL.
RMT
B/B
MUTE
EXT MUTE
TEST
VT
GND
5V
OSC 2
OSC 1
H.SYNC
V.SYNC
VID2
VID1
X OUT
X IN
POWER
ON TIMER
TONE
SIF SW
2IPIN-1 IN
KEY OUT CS
KEY OUT DATA
KEY OUT CLK
KEY IN
KEY IN
KEY IN
KEY IN
DE40 MV57124(RED)
POWER IND
K901 IR-9109K
REMOTE SENSOR
DE41 MV53124A (YELLOW)
ON TIMER
ZA01 TCR1029
ZA02 P4.7Kx4
QA02 M6M80011AP
QA10 BC547A
QA11 BC557B
QA07 BC547A
QB01 BC547A
QB02 BC547A
QV01 BC547A
QV02 BC557A
QV03 BC547A
Q202 BC557A
IC801 TDA4601
Q802 ON4408
D803 RBV-406M
D805 BYD33J
D806 BYD33J
D807 BYD33J
D808 BYV96E
D809 RU4A
D810 RU4Z
D811 BYD33J
D812 04AZ6.2Y
D896 1N4148
D897 1N4148
D201 1N4148
DA01 1N4148
DA02 1N4148
DA05 1N4148
DA07 1N4148
L801 TRF1112
L802 TEH2011
L803 TRF9253D
L804 TRF9253D
L805 TLN2026
L806 TEH2011
L807 TLN2026
T803 47003593 CONVERTER TRANS
S801 POWER SW
SA01 POSI UP
SA02 POSI DN
SA03 VOL UP
SA04 VOL DN
TO POWER BOARD
TO POWER BOARD
PV05
PV07
VIDEO1
VIDEO2
PIN
MODE
TV
VIDEO1
VIDEO2
VIDEO3
0V01
15
16
H
H(L)
L
L
H
L
H
(RST)
4.8
5.0
3.8
0.4
4.7
0.7
-0.4
2Vp-p
1.1Vp-p
2.2Vp-p
3.5
2.0
2.8
1.5
120
-230
620
450
400V
0.7V
-0.3
0.6
-0.6
-3.0
16
-34

20	VIDEO IN
21	SHIELD EARTH

U902 MAIN BOARD PB0978

U903A CRT DRIVE BOARD PB0158-1

U101C A/V SW. BOARD PB0977-3


IC501
TA8659AN
VIDEO AMP
TX CONT
BRT.BLK.CRAMP
C-Y AMP
G-Y MAT
TV/TX SW
FORCED STANDARD SET.
SYSTEM CONTROL SCANNING
H.V I² L
DE AMP&SW
BURST AMP
DEMO
COLOUR
PAL MATRIX SECAM PERMU
CHROMA AMP
IDENT
APC
CHROMA VCO
VERT
SYNC SEPA
32FH OSC
QV02 BC557A
QV03 BC547A
PV05
Q502 BC557A
LM02 TRF5414DA
LM03 TRF5414DA
L551 TRF5418D
X502 DL711
LM01 TRF1093D
LM04 TRF1092D
X501 4.43M
D314 04AZ12X
D315 04AZ7.5Y
0.6Vp-p
0.9Vp-p
3Vp-p
0.9Vp-P
1.6Vp-p
1.5Vp-p(H)
3Vp-p(V)
3.3Vp-p(V)
2.2Vp-p
S202 SERVICE SW.
Raster
H.Line
Receive
D241 1SS104FA
D403 04AZ12Y
Q699 BC557A
D699 1N4148
D698 1N4148
Q363 BC547A
D367 1N4148
HEIGHT
S301 VERT. UP/DN SW.
L462 DEFLECTION YOKE
VERT COIL
HOR. COIL
P570
M570
M511
Q303 AN5521 V.OUT
OUT PUT
DRIVE
PULSE AMP
D305 BYD33J
D302 BYD33J
28VDC
59Vp-p(V)
1.4Vp-p(V)
30Vp-p(V)
8Vp-p(H)
2.6V
Q408 MC7812CT
D408 RU4Z
Q402 2SC1569(FA-5) HOR.DRIVE
T401 TLN1027 HOR.DRIVE
Q404 ON4408 HOR OUT
980Vp-p(H)
D440 BY228
D441 BYW95C
D406 BYD33J
T461 G4298.03 HOR.OUTPUT TRANS
FOCUS
SCREEN
Q803 2SC2023(LF-4)
Q806 BC557B
Q804 2SA1321(C)
Q805 2SC2230A-Y
D809 RU4A
D810 RU4Z
D808 BYV96E
Q802 ON4408
T803 47003593 CONVERTER TRANS.
Q807 L78MR05
AUDIO GND
AUDIO +B
+145V
+5V
+12V
+27V
P402
P401
TO DPC BOARD
TO DPC BOARD

PIN MODE	QV01 15	QV01 16
TV	H	H(L)
VIDEO1	H	L
VIDEO2	L	L
VIDEO3	L	H

2502SFT

SCHEMATIC DIAGRAM (2/2)

IMPORTANT SAFETY NOTICE

Component marked with the International Hazard Symbol must, if changed, be replaced by an approved type and must be mounted as the original. This will ensure that the safety standards adhered to during manufacture will be maintained following any servicing procedure.

OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltage readings were obtained using a high impedance digital voltmeter.
2. (–) or ground lead of instruments should be connected to the ground marked (⊥) in the shematic on checking Non-isolated circuit surrounded by mark but should be connected to the points marked (⏚) on checking isolated circuit.
3. The voltage readings may vary as much as ±20%.
4. Check that the Tuning, A.F.C., Brightness, Contrast and Colour controls are adjusted for the best picture, making sure that the Contrast,Brightness and Colour controls are set near to their mid-positions.
5. The waveforms were taken using a standard colour bar signal and were observed using a wide band oscilloscope via a low capacity probe.

NOTES:

1. This circuit diagram is subject to change without notice.

EXPRESSION

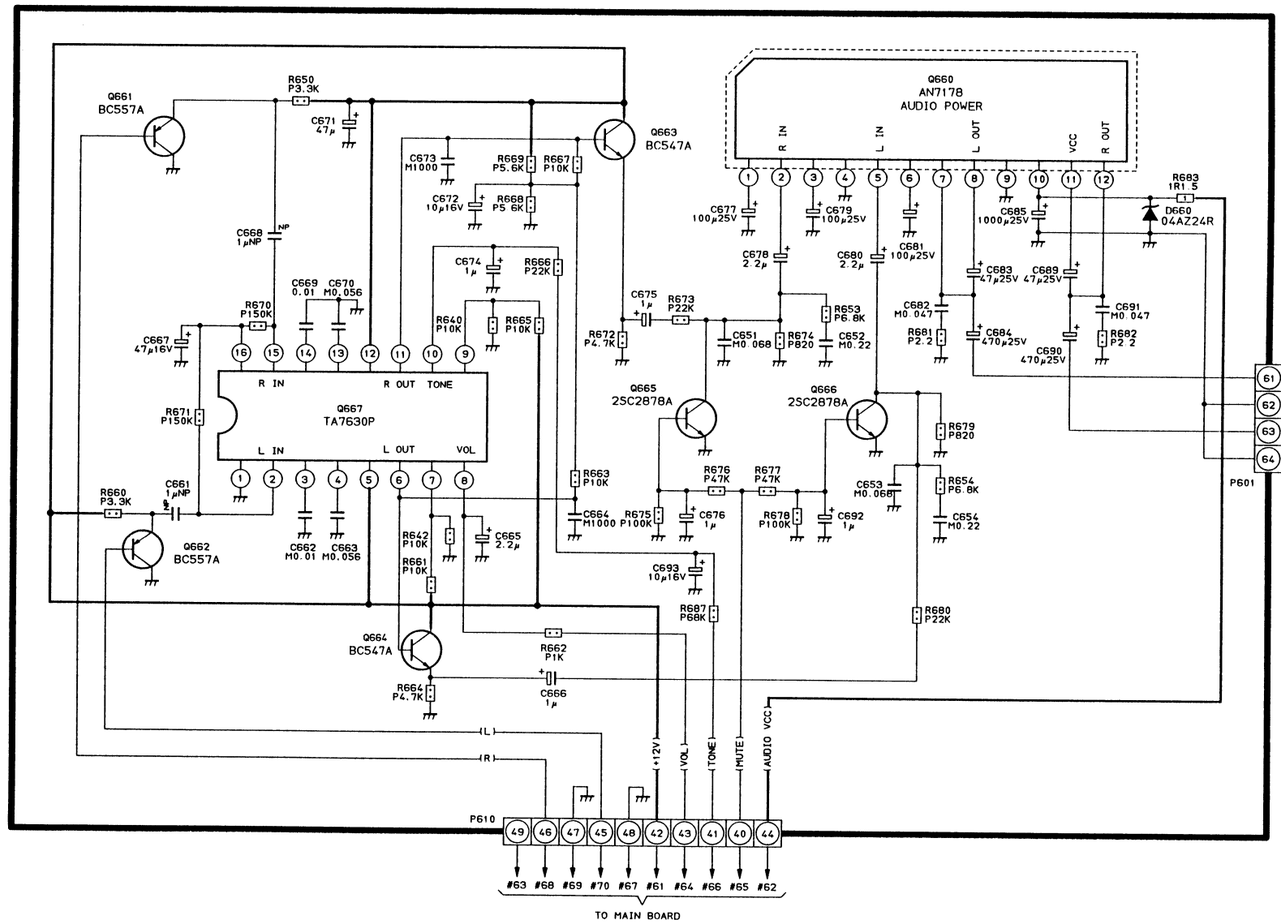
VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000.
2. Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μF and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in μH, and the values less than 1 in H.

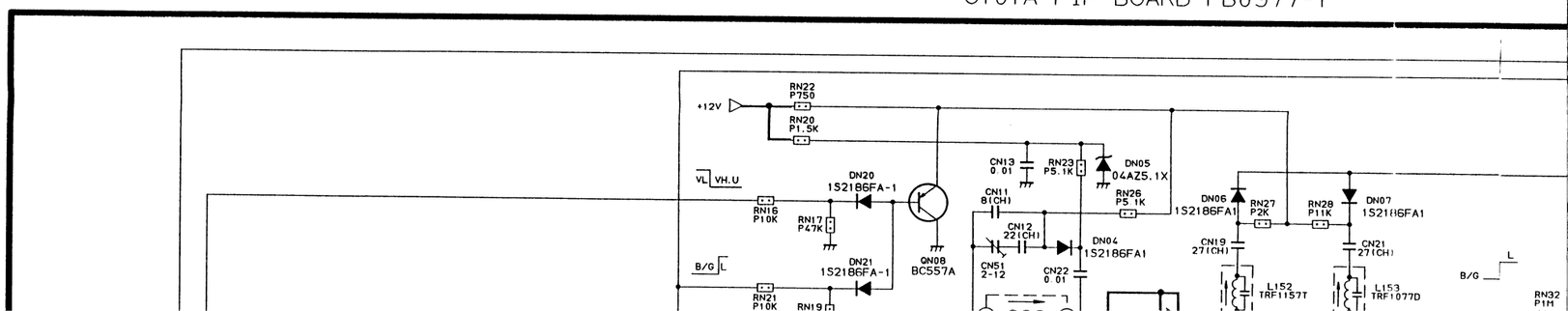
GROUNDING SYMBOL

1. ⊥: Non isolated ground, ⏚ : Isolated ground.

U903D AUDIO BOARD PB0158-4



U101A PIF BOARD PB0977-1



TO MAIN BOARD

U101A PIF BOARD PB0977-1

TO MAIN BOARD

P101

#8 (VIDEO)
#12 (VL VH U)
#5 (AFT)
#7
#4 (RF AGC)
#1 (+12V)
#10 (L B/G)
#6 (IF)
#9 (SIF)

+12V
VL VH.U
B/G L
AFT
RF AGC
12V
L
B/G
B/G SW
DET.OUT
SECAM
VL VH U

RN22 P750
RN20 P1.5K
RN16 P10K
RN17 P47K
RN21 P10K
RN19 P47K
DN20 1S2186FA-1
DN21 1S2186FA-1
DN02 1N4148
QN08 BC557A
CN13 0.01
RN23 P5.1K
DN05 04AZ5.1X
RN26 P5.1K
CN11 8(CH)
CN12 22(CH)
CN51 2-12
CN22 0.01
DN04 1S2186FA1
DN06 1S2186FA1
RN27 P2K
RN28 P11K
DN07 1S2186FA1
CN19 27(CH)
CN21 27(CH)
L152 TRF1157T
L153 TRF1077D
L151 TRF1162T
R119 P4.7K
AFC
R153 1M(B)
R128 P330K
RN32 P1M
QN11 2SK117GR
R123 P240
L104 FL-10
L105 PL-1
R125 P330
R126 P100
R124 P180
Z104 5.74M
Z103 TCF1019 5.5/6.0MHz
C119 0.01
R129 P100
R109 P8.2K
C111 2.2μ
R110 P5.6K
R111 P560
C112 47
R152 20K(B)
C110 0.01
R112 P3.3K
R113 P1.1K
R114 P2.2K
R115 P100
Q102 BC557A
R116 P470
R117 P1.1K
R118 P47
C113 0.47μ
C117 4.7μ25V
R120 P150K
R121 P330
Q104 BC547A
L107 PL-10
C114 47μ16V
C115 0.01μ
C116 0.01
C120 2200
R133 P2.7K
R134 P22K
R122 P82
Z102 CSB500F23
C126 1500
2.0Vp-p
Q101 μPC1820CA
EQ AMP
INV
LPF
APC
+45
-45
VCO
AFT
H VCO
SYNC SEP
AMP
VIDEO AMP
VIDEO DET
HORIZONTAL COUNT DOWN
IF AGC
RF AGC
LOCK DET
2ND IF AMP
1ST IF AMP
SIF DET
MUTE DET
AFC
Z201 TCF1013 6.5MHz
L103 PL-10
R201 P270
C103 100
Q406 2SD1378Q
R423 1/2R220
C425 100μ16V
C424 47μ25V
C423 0.01
D409 04AZ10Y
R108 P1K
R107 P10K
C109 0.01
C107 M0.047μ
C106 2.2μ
C108 1μ50V (TA)
C105 0.01μ
R105 P10K(G)
R104 P3.3K
R103 P2.2K
R151 5K(B)
RF AGC
R106 P47K(G)
C104 22μ
R102 P120K
C101 1000
R101 P2.2K
C102 1000
L102 TRF1148D
C601 1000
CN09 0.01
C123 0.47μ
R132 P680K
C122 M0.015μ
C121 1μ
NP
C125 0.01
L101 PL-10
C124 100μ16V
R130 P51K
R131 P75K
L602 TRF1069
R603 P2.2K
Z101 F1804D
C127 470μ16V
R167 R100
C164 0.01
R163 P6.8K
L161 TRF9202B
R160 P68
C160 1000P
R164 P1K
C162 1000
R165 P5.6K
C163 1000
Q161 2SC388ATM
C165 1000
R166 P56
R135 P150
RN44 P1.5K
RN46 P10K
RN45 P47K
QN15 BC547A
R187 R100
C184 0.01
R183 P5.6K
L181 TRF9221
R161 P68
C180 1000P
R184 P1.2K
C182 1000P
R185 P5.6K
C181 1000P
Q163 2SC388ATM
C185 1000P
R186 56
R670 P18K
R672 P560
C671 1000
Q671 2SC388ATM
R671 P2.4K
R673 P270

notice.

values less than 1 are expressed in

alues more than 1 are expressed in

RESISTORS

Prefixed to values:

TYPE	MARK
Carbon Comp.	S
Oxide Metal Film	R
Ins. Carbon Film	P
Wire Wound	W
Cement covered W.W.	NO MARK
Fusible Res.	FR

Suffixes to values:

TOLERANCE	MARK
±1%	(F)
±2%	(G)

Suffixes to VR values:

LAW	MARK
Linear	(B)
'C' Curve Characteristic	(C)

Rating Markings:

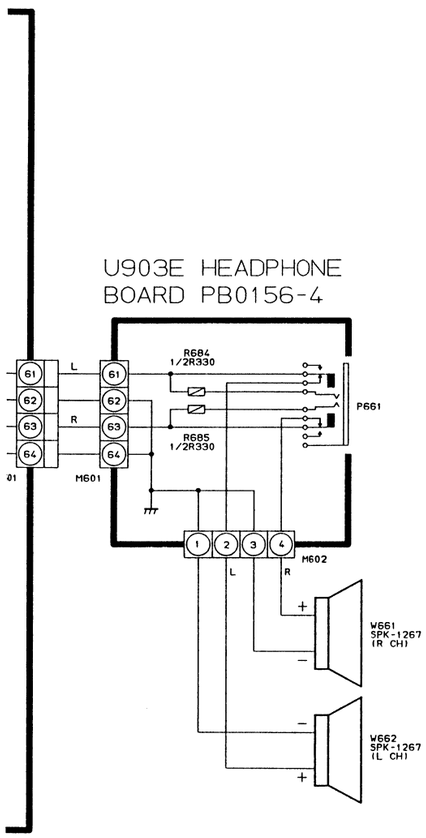
WATTAGE	MARK
1/6W	
1/4W	
1/2W	
1W	1
2W	2
3W	3
5W	5
10W	10
15W	15
20W	20
25W	25

CAPACITORS

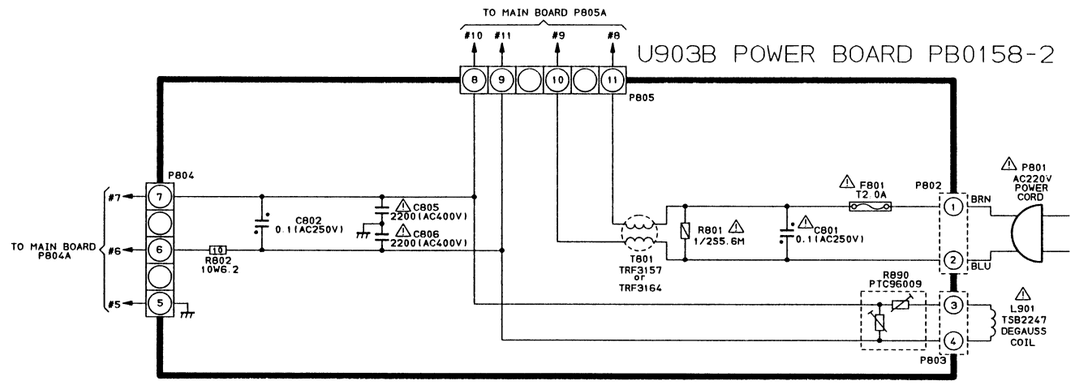
Rating Markings:

Type	Mark
Ceramic Disc 50V Only	
Electrolytic	
Electrolytic Non-Polar	
Variable Capacitor	
Other	

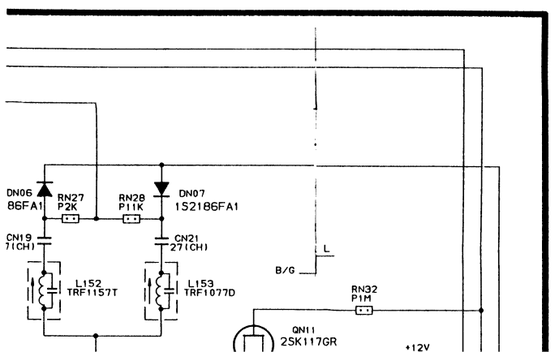
U903E HEADPHONE BOARD PB0156-4



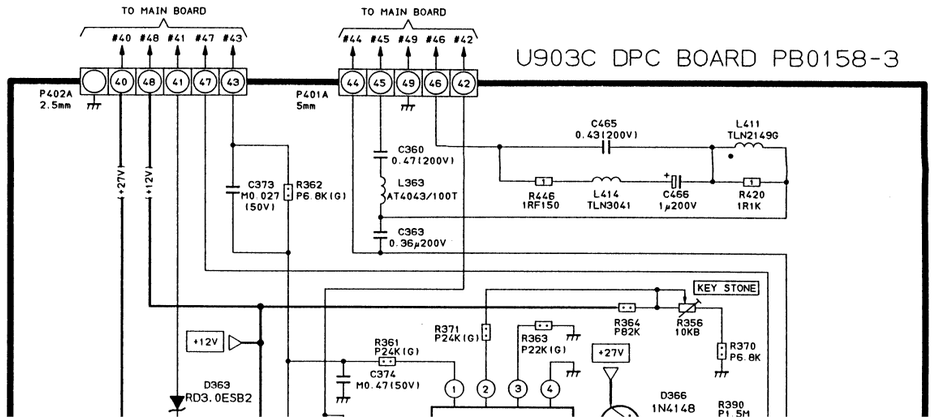
U903B POWER BOARD PB0158-2

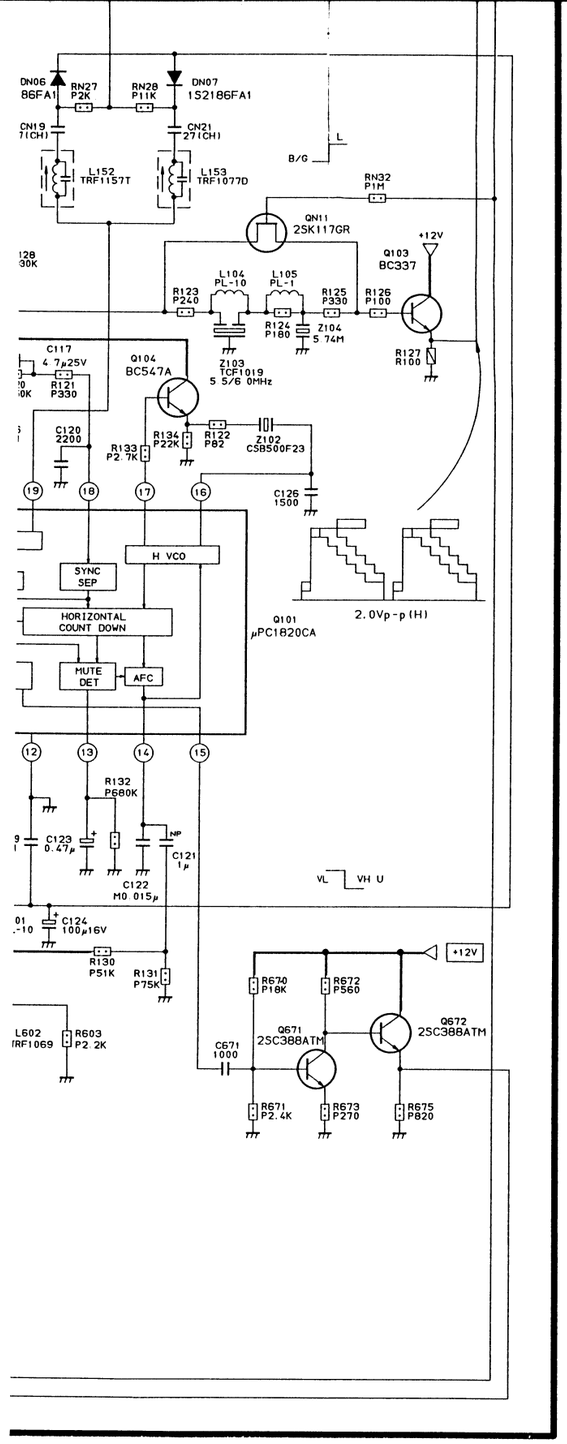


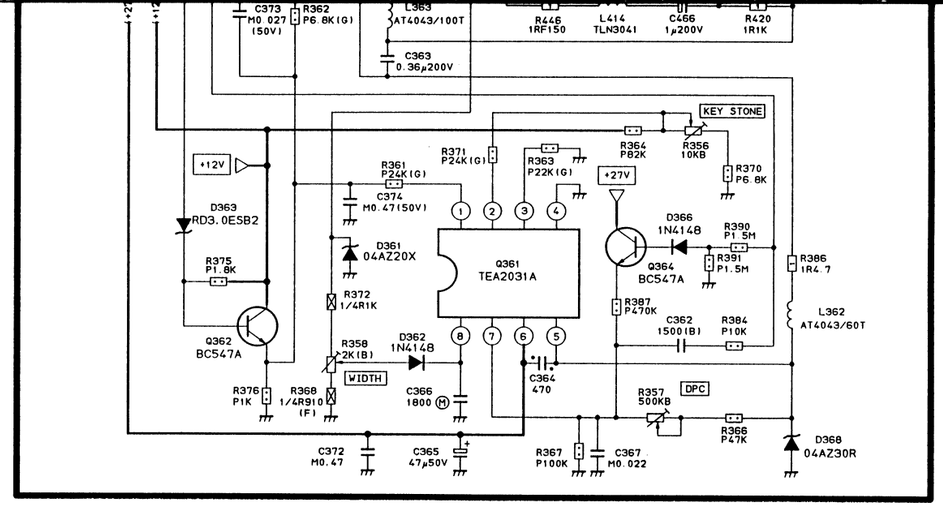
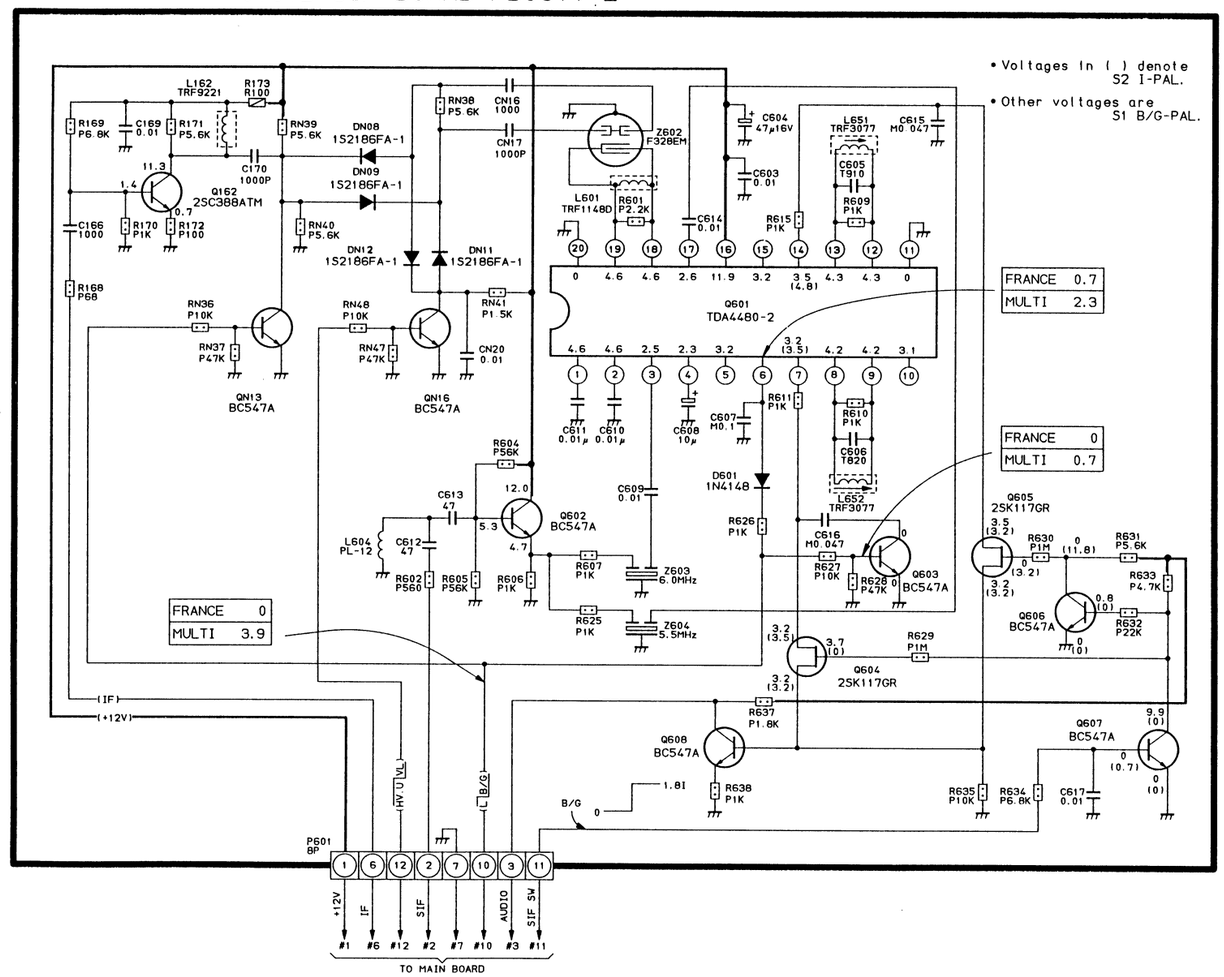
PB0977-1



U903C DPC BOARD PB0158-3







U101B SIF BOARD PB0977-2